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AN
ESSAY
ON THE
MEDICAL APPLICATION
OF
ELECTRICITY
AND
GALVANISM:

WITH
A CONCISE DESCRIPTIVE ACCOUNT OF DISEASE.

BY JAMES PRICE,
SURGEON,
MEMBER OF THE ROYAL COLLEGE OF SURGEONS,
LATE IN HIS MAJESTY'S SERVICE, &c.

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PREFACE.

THE Science of Electricity has been successfully investigated by many very able Philosophers and Chemists, who have favoured us with scientific views of this wonderful Agent ; but, in a medical point of view, we have nothing extant that can be depended upon as pointing out its efficacy, although a Book was published last year, I presume with this intent ; but as it is taken up in enumerating A B and C D cases, which, from the prevalence of such practice, tends to bring it into disrepute, from the doubts that naturally arise where no reference can be made to those persons, I am induced to offer the following pages to the Public, with the sincere hope that it may meet with their approbation. I am the more encouraged to this, by the success that has attended my practice in the use of Elec-

tricity. Those diseases, arising from a derangement of the functions of the digestive organs, commonly called Bilious, Nervous, &c. are relieved by a modification of this powerful Agent; and in habitual Constipation of the Bowels, Chronic Rheumatism, some species of Deafness, and habitual Asthma, its application is almost invariably successful.—Were this Agent beneficial in no other complaints than in those to which females are peculiarly subjected, it must be considered as extremely useful. I can state with confidence, that in my practice, by the aid of this active principle, I have succeeded in relieving those diseases where every other means had failed. This Agent is perfectly manageable, and may be applied without giving more pain than can be borne by an infant, since shocks are rendered unnecessary. That universal success should attend the application of this Agent in every disease, more than any other, would be ridiculous to assert; I am well aware at the same time that want of success very frequently arises from the

want of knowledge of the mode of applying it; defective apparatus, or, what is equally probable, ignorance of the disease, which it was intended should be relieved. The beneficial effects of this active principle, that is itself an important part of our constitution, must be so obvious, that comments in this place appear unnecessary, further than to state that it meets with the approbation of professional characters of the greatest eminence in every country.



Electricity and Galvanism
are administered at the Medicinal
and Chemical Repository, No. 11,
Old Compton Street.

INTRODUCTION.



ELECTRICITY is that subtle, elementary fluid, whose agency appears to be universally employed in producing the phenomena of nature, of unlimited extent: its importance in the system of the universe is beyond the comprehension of man.

Amongst the different branches of natural philosophy, which claim particular interest, the study of electricity appears to hold a preeminence, whether we consider its astonishing powers of promoting vegetation*, and adding to the comforts of life, or its effects, as visible to us in hurricanes, tempests, earthquakes, &c. Some fish† possess the structure which enables them to collect that fluid which is the surprise and terror of most people, when viewed in the operations of nature during

* Seeds and plants, that are artificially electrified, arrive at maturity much sooner than those that are not subjected to its influence. Evergreens, which retain their verdure almost continually, do so, in consequence of the electric power they possess.

† The torpedo, and the electric eel, of Surinam.

a thunder storm, and even produce astonishment, when those phenomena are shown upon a small scale in the study; to view cold metal, water, or even ice, as rendered capable of emitting sparks of fire, or farther to see a glass bottle, with a little preparation, capable, when touched, of producing a painful sensation, or even destroying life, and this attended with an explosion like thunder, and a flash like lightning.

The electric fluid is considered to be inherent or natural to all bodies either in a positive* or redundant state, or negative† or deficient state. The natural electrical states of inflammable substances‡ are positive, whilst those that support combustion or the acidifying principles§ are negative; this is inferred from the principle of similarly electrified bodies repelling, or dissimilarly electrified attracting, each other; the former

* Positive electricity is the superabundant accumulation of electric fluid on one body by depriving another of its natural quantity.

† Negative electricity is the state one body is said to be in, in opposition to the positive, being deprived of its natural quantity.

‡ Inflammable substances are hydrogen, nitrogen, sulphur, phosphorus, carbon, and boran; they are also known as the simple acidifiable substances.

§ The supporters of combustion are oxygen, chlorine, and iodine; they are also called the acidifying principles.

(inflammable substances) are attracted by the negative pole, and the latter (supporters of combustion) are attracted by the positive pole, when their compounds are submitted to the electrochemical decomposition.

When bodies are stated to be electrically excited, there is a disturbance of the natural quantity of one body by the attraction of the other, which may be effected by rubbing one against the other ; thus, when a piece of glass is rubbed with silk, or sealing-wax with flannel, they acquire a positive or negative state of electricity. When the glass is rubbed against the silk, the equilibrium is disturbed, a portion of the natural quantity of the electric fluid is taken from it by the glass, which is then said to be positively electrified. When the sealing-wax is rubbed against flannel, a portion of its electric fluid is taken from it by the latter (flannel), which is, consequently, positively electrified ; the sealing-wax and the silk (in the former instance) are in a negative state of electricity, being deprived of their natural quantity. Present a pith ball, suspended by silk (which is a non-conductor) to a positive electrified body, and then convey it to another that is also positive, it will be repelled ; but if it is conveyed to a negative electrified body, it will be attracted ; it thus shows that two bodies, similarly electrified, repel each other, and

dissimilarly electrified, attract each other : or, as it is called, the opposite states (negative and positive), annihilate, or neutralize each other, the equilibrium being restored. By an electrometer* you are apprized of the presence of elec-

* An Electrometer, as constructed for ascertaining the presence of electricity.—Two strips of gold leaf are suspended from one end of a wire five inches long ; this wire is passed through a glass tube four inches long, and fixed in its centre by a plug of silk, to keep it concentric within the tube ; the other end is fastened to a brass cap, that covers the superior part of the tube, the greater part of the latter being contained within a glass cylinder, to keep it with its contents dry and free from dust :—bringing a body in a state of positive electricity to the brass cap, the fluid communicates through the wire with the gold leaves, which diverge, presenting a negative body in the same manner, and they will collapse.

Another, called the Quadrant Electrometer, for ascertaining the relative charge of a jar or battery.—A semicircular piece of ivory (the lower half being divided into 90°) in the centre of the ivory is fixed a pin, from which an index of cane, four or five inches long, with a pith ball at its extremity is suspended ; the ivory is fixed to a round stem of wood, with a metal socket six or seven inches long, the lower extremity of which may be fixed to the prime conductor. The index, before the charge is formed, hangs down by the stem, and as the electricity accumulates, it is propelled from it, traversing the semicircle to a certain distance, in proportion to the strength of the charge.

Another, called the Regulating or Medical Electrometer, used to regulate the strength of the application of elec-

tricity: by presenting an excited piece of glass or sealing-wax to this instrument, you ascertain whether they are positively or negatively electrified. Those bodies which suffer the electric fluid to pass through their substance are called conductors*, and those that receive it on the spot touched, non-conductors†; the former when rubbed do not, in general, become electric, and are therefore called non-electrics, the latter (non-conductors), when rubbed acquire electricity, are called electrics, or insulators; there are many imperfect conductors‡. These are circumstances that are to be borne in mind in making a machine§, as well as to keep it in order, for

tricity.—A solid piece of glass, mounted at one end with brass, to fix or suspend it to the conductor, the other end being also mounted with brass, in which there is a hole to admit a metallic wire to slide through, so as to bring that end of the wire, mounted with a brass ball, to such distance, in proportion to the strength required, from the prime conductor; the other end of this wire is mounted with a wooden ball, to prevent the escape of the fluid.

* All metals are conductors.

† Glass, sulphur, and resins, are non-conductors.

‡ Water, damp, spirit of wine, and some oils, &c. are imperfect conductors.

§ The best machine is a glass cylinder (capped at each end) about 12 inches in diameter, and 20 inches in length, turning between two upright pillars of glass, 30 inches in height, which renders it perfectly insulated; these pillars are

the purpose of accumulating the electric fluid, which is conveyed by a metallic wire from the

fixed in a solid slab of mahogany, that has a notch for the block to move in it. Their upper extremities are received in brass ferules that, at their upper end, receive two pieces of mahogany, about four inches in height, in which the axes of the cylinder revolve, the one axle passing through, to which is attached the small grooved wheel, six inches in diameter. From the slab projects another axle, for the multiplying wheel, 18 inches in diameter; the grooves are not placed parallel in both wheels, the blanches of the axis of the lower wheel being made slanting, to prevent the silk string from rubbing (silk being a non-conductor should always be used). The cushion, or rubber, 13 inches long, placed behind and between the cylinder, and two strips of steel, about five inches in height, which support it; these strips of steel are fixed about two inches from each end of a wooden bar, 13 inches long, their upper extremities receiving two screws, in notches, which support and attach the rubber quite firm. The bar has a stem that is received in a brass ferule, the lower end of which receives the upper end of a glass pillar; the lower end of the latter is fixed in the movable block; the intention of its being movable, is to bring the cushion nearer the cylinder; this is effected by two upright brass pins, the one fixed in the slab, the other in the block, with a parallel bole through each, that receives a screw, by means of which the block is moved in or out, so as to bring the rubber in contact with the cylinder, or remove it to a distance from it, for the purpose of cleaning the cylinder and amalgamizing the rubber. The cushion, or rubber, is a bar of wood, 13 inches long, the surface next the cylinder being covered with leather stuffed with wool; this cushion is covered with silk, which extends as a flap

ground to the negative conductor (or cushion), from which it is accumulated on the cylinder by the friction of the latter against the amalgamized rubber*, and then given off to the positive

over the cylinder to within one inch of the points of the conductor; over that part of the silk covering the cushion, and between it and the cylinder, is placed a leather, upon which the amalgam is spread: the motion of the cylinder is in the direction of the silk flap.

The prime or positive conductor is made of copper, brass, or tin, the same length as the cylinder, and one-third its diameter: at its extremities it has holes, the one next the cylinder to receive a stem that is attached to a small round piece of brass, with points presented to receive the electric fluid when accumulated on the cylinder by the friction of the latter against the rubber: at each end of the brass with points, are wooden balls, one inch in diameter, to prevent the escape of the fluid: the hole at the other extremity of the conductor, receives a stem of brass, five inches long, having a ball at its extremity three or four inches in diameter; this conductor is supported on a glass pillar that is fixed to a circular slab of mahogany. Another conductor, on the same construction, with the exception of there being no points, but a stem and ball, may be placed behind and attached to the cushion, which will be negatively, as the former will be positively, electrified. The conductors and the machine to be placed on a firm table.

* Amalgam is made by melting one part (by weight) of zinc, and pour into a thick wooden box, that fastens with a screw, and add instantaneously five parts of mercury; enclose the box in a flannel, and agitate till cold. Unscrew the rubber

conductor, being received through the points (a point being the best conductor): the quantity and intensity of the electric fluid accumulated, depends upon the size of the machine and its being in a proper state of excitation, the cylinder and the conductors being also well insulated. One insulated metal (zinc) brought in contact with another (silver), will be positively and the other negatively electrified. If the nerve of an animal be attached to the former metal, and muscular fibre to the latter, and the two extremities of the metals be brought in contact, convulsions are produced, precisely the same, but in

from its support, remove the old and oxidized amalgam with the edge of a knife, rub the thinnest surface of tallow on the rubber, and then spread, even, a thin coat of amalgam, which is to be applied only on that part of the cushion that comes immediately in contact with the cylinder; none ought to be applied above the place of contact, as it reconveys the fluid to the reservoir from whence it was extracted; before the rubber is returned to its place, the cylinder must be cleaned, removing every particle of the oxide of mercury that has accumulated on its surface, replacing the cushion. If the machine will not act well, put the thinnest surface that can possibly be placed of tallow on the cylinder, with a woollen cloth, and wipe it off pretty clean; then put a leather, with a little amalgam on it, in contact with the revolving cylinder, which will fill the smaller pores of the glass: every overplus, for that purpose, will be caught by the rubber.

a less degree, as would be produced by the discharge of a Leyden jar*, or an electric

* Leyden jar, or medical bottle.—The usual size, for medical purposes, contains about a pint, coated internally and externally with tin foil, being a good conductor, to within two inches of its mouth; the latter is stopped up with a wooden cock and cemented, through the centre of which is an aperture for a glass tube, about one inch in diameter and six or seven inches in length. One extremity is put into the bottle to the depth of three and a half or four inches: the internal surface of this tube is also coated from within half an inch of its lower extremity to the distance of about half an inch above the aperture in the cock, and the external also is coated to the same distance; a piece of wire connects it with the inner surface of the jar: the upper extremity of this tube has a brass cap with a ring to suspend the bottle to the prime conductor: in the cap are two holes, one to admit a metallic wire, which extends to the bottom of the bottle, to communicate with its coating, and the other to admit a shorter wire, merely to be brought in contact with the coating of the tube. A brass hook, to suspend a wire, is cemented to the bottom of the bottle: the bottle being suspended to the prime or positive conductor, is charged from it, the wires conveying the fluid to the internal surface: but this cannot be effected, unless a communication is made from the external surface with the ground or with the negative conductor, as no addition of this fluid can be made to one surface but as the opposite is deprived of its natural quantity. When the jar is charged, the internal surface positively, the external negatively, touching the brass cap or prime conductor with one hand, the outer coating of the jar with the other, a shock will be received, the electric fluid passing from the internal to the external surface, to restore the equilibrium; but if the charge is complete, the shock will be too great.

spark*.—From the extreme ends of a Voltaic, or, as it is commonly called, Galvanic trough †, we have

Discharger.—A discharger is used, which is an instrument, with metal legs, movable like a pair of compasses, with balls at their extremities, mounted on a glass handle: one ball is brought in contact with the external surface of the bottle, and the other with the cap or conductor: the circle being formed, the discharge is made, the equilibrium being restored.

Vibratory motion.—Removing the long wire out of the bottle, the internal surface of the tube is then only charged, the discharge of which constitutes that sensation which is called the vibratory motion: if the machine is well excited, this discharge will be in a continued stream of very considerable intensity, which renders it of so much utility as a medical application.

* *Electric spark.*—Electric spark; a body positively electrified, discharging itself of its superabundance to a negative body, presented to it, a spark is perceptible passing between them.

† *Voltaic trough.*—A wooden or earthenware trough being divided into partitions or cells which contain the fluid, nitric acid one part, sulphuric acid one part, water 60 parts, is generally used, where great intensity is required for chemical purposes; but for medical purposes 240 parts of water may be used; two dissimilar metals (zinc and copper) are placed alternately, beginning at one extremity with one, and ending at the opposite extremity with the other metal. Those plates are attached to bars of wood, by means of which several of the series of plates may be placed in or taken out of the fluid at once. Wires from each extremity of the trough are in the opposite states of electricity; the one positive, from the zinc end, the other negative, from the copper end: those wires intro-

electricity in its opposite states, the intensity of which depends upon the increased alternations of dissimilar metals, which may be increased so as to render the heat so intense in passing between the poles of the conductors as to fuse what ordinary heat will not affect under any circumstances: in the same manner, but in a greater degree, as if the electric fluid was conveyed to restore the equilibrium when collected by the machine and condensed in a battery*. The shock from either is dangerous. As we have intensity † of electricity, by increasing the number of alternations of the plates, so we have an increase of quantity ‡ by an extension of the surface of the plates, and an increase of both by improving the

duced into water decompose it, the oxygen being liberated at the positive, and the hydrogen at the negative pole; the inflammable element is also liberated at the negative pole, when the other substance is decomposed.

* *Electrical battery*.—An electrical battery are three or more Leyden jars, the internal surface of the one communicating with the internal surface of another, and the external surfaces communicating with each other in the same manner, so that by touching the jar with the conductor, the whole battery will be charged.

† *Intensity*.—Intensity signifies the power an electric charge has of passing through an ill-conducting medium.

‡ *Quantity*.—Quantity signifies the absolute quantity of electric fluid in any body.

oxydizing power of the fluid, by adding an acid to it. The same may be said of the coated surfaces of the jars : one containing a quart, charged by a certain number of revolutions of the cylinder, will contain quantity ; but a pint jar charged by the same number of revolutions, will contain intensity. There is no difference in the effect of a battery charged with intensity or quantity upon bad conductors, such as water, the human body, &c., but upon good conductors quantity acts more powerfully. Whenever bodies change their forms, their electrical states are also changed. Water may be decomposed by inserting the negative and positive poles of the conductors from a Voltaic trough ; the oxygen escaping at the positive and the hydrogen at the negative pole.

Electrical and chemical phenomena, Sir Humphry Davy thinks, although in themselves quite distinct, may be dependent upon one and the same power, acting in the electrical upon masses, and in chemical upon particles of matter. When we perceive how universally active this agent is in nature, we naturally infer it is equally active in the animal economy, and it may be rendered the more evident when the inferences are taken into consideration that arise from experiments, which prove that every function but one (respiration, which requires the influence of the sensorial power) of the nervous system can be performed

by electricity. As a science it is very entertaining; a great variety of beautiful and interesting experiments may be performed with it: as a medical application there is not yet discovered in nature any which possesses so much power and may be used with so much general advantage in all complaints to which man is subjected, not excepting those which partake of acute inflammation*, modified as circumstances indicate; none that can be applied with so little inconvenience or pain, since the practice of applying shocks is abandoned as unnecessary. It has been applied in complaints where all other means had been resorted to without success, even to the preventing the operation of amputation and other operations of excision, which had been suggested as the last and only means of saving life, by men who are, notwithstanding, justly called eminent in their profession, but who had no knowledge of electricity as possessing such medical efficacy.

Medicines have been administered in conjunction with this application with immediate effect,

* Inflammation arises from an obstruction, in the capillaries, to the circulation, which may be removed by taking the electric aura from the surface, or by simple electrization, thus restoring the functions of the capillaries, the inflammation subsides.

that before had none. The application of electricity in aid of medicine has been by professional men generally neglected, which can only be accounted for by the want of the knowledge of its powers, the consequence of its not being publicly taught as applicable to disease, but merely as a science to excite the wonder of the bystanders by the great variety and beauty of the experiments. In chemical research voltaic electricity has been one of the most useful auxiliaries.

It may be inferred that the medical application of electricity is an operation that may frequently be required, where that discrimination should be made, as to the mode or intensity of application, which can only be made by a person of professional education : as this has been, as just stated, neglected by the profession, it has consequently been practised by persons who have no pretensions to professional knowledge, and who have treated all cases indiscriminately alike, and that most generally by shocks (their apparatus frequently not admitting of any other application), which has tended to bring this useful agent into disrepute. Since the decease of Mr. Birch, late surgeon extraordinary to his present Majesty, I am not aware of any person practising in this branch in the metropolis whose education would be **considered** as rendering him **adequate to be admitted** to practise the different

branches of the profession, except a gentleman of the name of Partington, though there appear to be a great many advertising.

Voltaic electricity has been proved by experiments capable of performing every function of the nervous system, every function essential to life, except respiration, as before stated, upon which system or influence the formation of all the secretions depends: the nervous influence not only prepares, but preserves for their proper uses, the secreted fluids, regulating the absorption as well as the secretion. Aware of these circumstances, must not electricity be considered an agent peculiarly applicable to defective energy? an agent that can perform every function of the nervous system; that system upon which every function of the animal economy depends. When these functions are disturbed, the nervous system must be disturbed also, or rendered defective. What can offer as more likely to restore energy than the application of that agent that is of itself capable of performing those functions, if properly modified?

It has been proved by experiments, first performed by Dr. Wilson Philip, that on dividing the eighth pair of nerves in an animal (first causing the animal to fast for ten or twelve hours, and then permitting it to eat a moderate meal) digestion ceases: but upon applying a stream of voltaic

electricity, of a certain degree of intensity, the digestive process will be performed as perfectly as in another animal that undergoes no operation, but merely causing it to fast for the same length of time as the former, and then permitting it to feed off the same quantity and quality of food. Cases offer daily, where defective secretions and nervous energy exist, where the bowels are constipated, a train of symptoms ensuing, indicating the reaction of this disturbance upon the nervous system. The primary affection may be occasioned by taking more into the stomach than can be digested, or disturbing the process of digestion, by taking fluids unnecessarily, or vinous or spirituous liquors at improper times, or to an excess; another cause of this disturbance may be eating too hastily, not sufficiently masticating and assimilating the food with the saliva; thus the functions of the digestive organs are deranged, the sanguiferous system is overcharged and hurried, the nervous system becomes irritable, reacts upon the disorder, defective secretions and torpor ensue. The functions of the stomach are so essential that upon them all other functions of the animal body may be said to depend: its diseases are frequent and varied, and it partakes of the diseases of other parts, or of the whole system. Cases have come under my care, where every means have been resorted to, by the most eminent professional

characters, to produce regular secretions by calomel, mercurial pill, commonly called blue pill, and different purgatives, none of which succeeded until the application of electricity was had recourse to. A remarkable case, of three years standing, in a young gentleman, where none of the preceding modes of treatment would relieve, and latterly could not bear the operation of a purgative, as it produced such violent constitutional derangement, he was consequently advised to have recourse to enemas, to evacuate his bowels daily ; but who, I am now happy to state, has, by the application of electricity, been restored to good health, his bowels evacuating naturally every day.

How frequently the knife is had recourse to when it would be rendered perfectly unnecessary, were the means adopted for restoring the general health ; and many of those operations do not succeed, for want of that attention which this agent would contribute so much towards the re-establishing. With what astonishment must a person conversant with the application of electricity, view the preparation for the removal of diseased parts by excision, that if submitted to the action of this simple elementary fluid, which will pervade the hardest substances, and give energy and health to suffering thousands, if judiciously applied, and save the already too

great sufferer from the additional pain of undergoing an unnecessary operation. Mr. Birch, late surgeon extraordinary to the King, enumerates cases of cures performed by him, that were submitted after all other means had been tried under professional gentlemen of the first eminence in the kingdom without effect; gentlemen who were themselves at first sceptical and prejudiced against the practice, till rendered evident to their senses, by the perfect cures performed in the following complaints, and also in those peculiar to females, without an exception. Obstinate remittent fevers, where the bark and other means had failed; contusions; spasms; numbness and coldness of the limbs; paralysis; ulceration, assuming a cancerous appearance; scrofulous tumours; painful and other eruptions on the face. Even in the last stage of fever, when the powers of life seemed perfectly exhausted, this agent produced apparent reanimation. Hydrocephalus internus, or dropsy of the brain, where mercurial and all other medicines had failed. Violent pains in the head; sprains; enlargement of the knee-joints from chronic inflammation, as well as white swellings, where it had been determined upon by the most eminent surgeons to amputate. Enlarged and scirrhus testes, where the operation of castration

had also been determined upon, and were actually attended for that purpose: even pain and inflammation, that threatened suppuration in the testes, cured. Melancholy madness, where during their sufferings they had premeditated self-destruction, and in one instance had actually made the attempt, and there was apparently a suspension of life. Obstructions to the flow of urine, from defective secretion in the kidneys, as well as retention of urine, from paralysis of the bladder; also cases where the urine passed away involuntarily. Defective secretion in the testes, where there was perfect indifference for softer pleasures, amounting even to a loss of tone, which had resisted the power of every medicine upwards of twelve months.

Nine-tenths of diseases, both local and general, arise from a derangement of the digestive organs, however induced. Bilious complaints, as they are commonly called, with their long train of symptoms, giddiness, pain in the head, feverish heat, restlessness, cramp, melancholy, &c., as well as those unhappy feelings called nervous, may be traced to a derangement of the digestive organs, where the indications of cure are to restore their functions, when in proportion to the success attending such attempts, the general health is amended. Complaints that are considered local, some species

of blindness, deafness, &c., arise from the same cause, and the successful mode of treatment is to restore the functional derangement of the digestive organs, as well as in all chronic and constitutional complaints, such as scrofula, scirrhus, cancer, gout, &c. The peculiarity of constitution, implied by the terms scrofulous, scirrhus, or gouty habits, cannot, perhaps, by any mode of treatment, be effectually changed; but great progress has been made to ameliorate the sufferings of these, by paying due attention to those functions upon which all others more or less depend, the functions of the digestive organs; attending to the quantity and quality of the food, is one of the most essential points, either as a curative indication or a preventive. Where there has been aberration from a state of health for some time, a little medicine may be required, which will most essentially be assisted in its operation by the judicious application of the electric fluid: indeed the latter application may supersede the necessity for taking medicine in many instances. It may not be improper to state here, that the greater number of my patients have come to be electrified with the greatest apprehension, from a supposition that the operation would be painful, who are not the less surprised when they find that so far is it from being painful, it is even applied to dis-

eases of that delicate organ, the eye, and the sharpest application that is required to be made in any case, can be borne by the most delicate female, or even an infant. Many hundreds of the fair sex perish annually from complaints peculiar to them, that might be restored to perfect health, by the judicious application of this agent, cases that I am satisfied could not fail of being relieved. I regard it as a specific, having never in any one instance failed to produce the effects wished for, by some for years, where every other means had proved unsuccessful. Electricity may also be applied in all cases of chronic inflammation of the liver; inflammation, or ulcerated sore throat; chronic inflammation of the joints, as well as white swellings; rheumatism; the latter, I may say, it is a specific for, as I never apply it but with complete success; erysipelas; paralysis; pectoral angina; hypochondriacism; asthma; melancholy; dropsy; obstinate remittents; spasms; numbness and coldness of the limbs; scrofulous tumours; eruptions on the face; hydrocephalus internus; violent pains in the head; sprains; scirrhus glands; defective secretion of urine; involuntary flow of urine; defective secretion in the testes, and inability to enjoy the softer pleasures, that frequently arise from pernicious practices of youth, and other causes; chilblains

it is a specific for ; ulcers, some cases of which have come under my care, where they could not be healed in many months application of adhesive plaister, bandages, &c. that have healed as if by charm, by the application of electricity; ganglions; chronic ophthalmia; opacity of the cornea, &c. &c.: thus this tremendous agent in the operations of nature, that excites so much terror, is now brought to be directly subservient to man, and applied to disease in such a manner, that the most timid may submit to, without the least apprehension; even the old mode of electrifying by shocks, is found not only unnecessary, but improper. The different applications are the electric aura, sparks, and vibratory motion, the intensity of which are modified as circumstances indicate.

The mode of applying the electric aura, is to seat the person in any chair, convey the fluid along a chain or wire from the prime conductor, the one end of the wire being attached to a glass mounted director, with a wooden handle, to the extremity of which wooden or ivory points or balls are fitted; substituting a metallic for the other points or balls, sparks will be communicated. Particular attention is requisite in putting the apparatus in a good state of excitation before any operation is undertaken. To take the aura, or sparks, from the body, the

person should be seated in an insulated chair*, connected with the prime conductor, which becomes filled with electric fluid, and will discharge itself to the director presented with-

* Electrical or insulated chair:—A piece of mahogany three feet long and two feet wide, which is supported by glass pillars, nine inches in height, forming a stool, upon which is placed a mahogany chair, the seat of which may be fifteen inches deep and twenty inches wide, standing in height about eighteen inches from the stool. The back to have one bar at the top more, would interfere in applying the conductor, or director, down the spine. In the centre of the seat is a hole, about an inch in diameter, that has a glass tube, six inches long, fitted in, through which the electric fluid may be conducted, being received upon a flatted-headed pin, placed from above downward. At the lower extremity of this pin is a hook, to which the wire may be fixed, having its other extremity attached to the external surface of the bottle or to the ground. By this means the electric fluid may be passed direct through the uterus, or to a diseased testes, when applied by the director to the part from whence it is desirable the fluid should pass. Or a point may be placed just within a glass tube, and connected by a wire with the ground, and the electric aura thrown on the patient, which passing direct through the abdomen, intestines, and rectum, will relieve constipation, and may thus be safely applied to females, even during pregnancy. Indeed in one case where the child adhered to the side of the uterus, as was supposed by the medical attendant, a physician of great eminence, the benefit derived was astonishing, and the lady now ascribes the life of herself, and a fine boy, to its mild yet efficacious power.

in a certain distance of the person: when it is desirable to pass the fluid along the course of a nerve, or in any particular direction, the person insulated, should have the connecting chain of the chair brought nearly in contact to the one end of the limb or part to be electrified, and the director presented to the other extremity. Or the person should be placed in the insulated chair, when the wire, that connects the cushion or negative conductor with the ground, should be applied to one point, by means of a director, and the wire from the positive conductor applied to the other point, by means also of a director. The fluid will escape from the person to the cushion, and be applied to him from the prime conductor. The vibratory undulation is effected, by placing the person in the insulated chair, bringing the one end of the wire attached to the medical bottle (the latter with the short wire only, being suspended from the prime conductor), in contact with the person, conveying the fluid along an insulated chain, attached to the electrometer, to the part required, the fluid will pass from that point where it is applied, to the point of the other wire from the external surface of the medical bottle. The person is thus placed within the circle where the fluid passes in its opposite states of electricity (positive and negative) to restore

the equilibrium between the internal and external surfaces of the bottle ; but where an uninterrupted continued stream of electric fluid, in a state of considerable intensity, is required to pass through parts, it may be well to place the person between the opposite ends of a Voltaic trough.

It is presumed that no person will attempt to apply this powerful agent medicinally, without first making himself acquainted with the apparatus, as well as experimental electricity : it appears therefore unnecessary to be more minute in describing the mode of application. I need not state the impropriety there exists in this universally active agent being applied to the cure of disease, by any persons but those that are professionally educated, who only can be the competent judges of the nature of disease, and the stages when it would be proper to have recourse to it as a means of relief, either alone, or as one of the most powerful auxiliaries to medicine.

FEBRILE DISEASES.

FEVER is defined an increased heat, and frequency of pulse, after a shivering, accompanied with a disturbance in many of the functions, and diminution of strength, without any primary local affection. Intermittent fever, or ague, consists of paroxysms between which there is a distinct intermission from febrile symptoms for twenty-four, forty-eight, or seventy-two hours; the first called the Quotidian, second Tertian (many writers are of opinion that all fevers are varieties of this species, from its frequent occurrence, and being better marked), and the third Quartan.

A paroxysm consists of three stages, a cold, hot, and sweating: the first is a shivering of the whole body, that is gradually succeeded by the hot, which abates, and again is succeeded by moisture on the skin, that increases to a profuse perspiration. The period of fever, or paroxysm, generally takes up six or eight hours. This fever is attributed to marsh effluvia, or it may probably be from the effects of moisture acting on electric matter, which deprives the

body of this principle; the consequence is a reduction of the vital powers, hence the cold stage. The increased action (or hot fit) is the effort nature makes to regain her lost energies: the duration of this change is limited to a certain time, when perspiration comes on, which terminates the fever; a languid state of body follows; after a certain intermission, the same process goes on again, although the exciting cause may have been removed.

Remittent fever is so called, there being no complete interval or apyrexia, one exacerbation not appearing entirely to go off before another ensues, although there may be distinct exacerbations and remissions perceptible.

Continued fever is so called when there are repeated paroxysms; but the remissions are slight, the symptoms being less regular and more protracted than in intermittents; the cold stage is also more frequently absent, and generally consists of irregular chills, alternating with heat for the first day or two. This fever is divided into two species, Synocha and Typhus: in the former inflammatory symptoms predominate; in the latter symptoms of debility prevail: the prostration of strength is little, which precedes the attack, and the cold fit or chills is more frequently absent in synocha than in typhus, the heat becoming continued, great

redness of the eyes and skin, pulse frequent and strong, great thirst and desire for cold water, which may be indulged in. White tongue, scanty and high-coloured urine, bowels constipated, head-ache, watchfulness, hurried respiration; local determination of the circulation sometimes arise—to the brain, producing phrenitis; lungs, pneumonitis; liver, hepatitis, &c. This species though, generally terminates in the second or typhus, but sometimes subsides; the capillaries, which are in a state of debility and distension, recovering their functions, moisture appearing on the skin, or a gentle diarrhœa comes on, urine depositing a furfuraceous sediment. The second species, or typhus, may be the sequel of synocha, or may arise from specific contagion, with symptoms of great debility, weariness, troublesome head-ache generally over the eyes, pains resembling rheumatism over the whole body, nausea or vomiting (this symptom happening after the fever has made some days progress, bile is brought up, vitiated and dark, resembling coffee-grounds), vertigo, dimness of sight, dejection of spirits, sometimes excessive, pulse frequent, weak, and often intermitting; tongue at first covered with whitish mucus, afterwards becomes dry, brown, and tremulous, with little thirst; heat at first but little, in a few days becomes intense, arising

the mercury to 108° Fahrenheit; acrid to the feel; determination of blood to the head, temporal arteries throb, low muttering delirium, bowels sometimes costive at the commencement, at other times diarrhœa; or the latter may supervene: it sometimes happens, but not always an attendant, that hæmorrhages take place from different parts of the body; when it takes place in the vessels of the skin, the blood is detained under the cuticle, giving the appearance of small round spots, termed petechiæ; subsultus tendinum, coma, fœtid and involuntary excretions, cold extremities and convulsions.

The symptoms vary very much at the commencement and during the progress of the disease; in no disease more so than in the latter. Typhus is divided into low nervous fever, putrid fever, and yellow fever; as the symptoms are alike, excepting that they are more malignantly violent and rapid, the indications in the cure are the same. Fevers sometimes, where there has been much debility, will leave a permanent derangement of some of the functions, but most generally the senses are only impaired, such as deafness, defective sight, alteration of the voice, and sometimes the judgment. The indications during the intermission or remission, in intermitting or remitting fever, are to excite a new action, destroying the morbid concatenation

induced by the exciting cause, which may be effectually done immediately before the cold fit comes on by that application of electricity, called the vibratory motion, attending to the chylo-poetic viscera, removing any cause of irritation by an emetic, and the administering a calomel purge.

In continued fever the malignity of the attack is to be considered; when the synochasymptoms appear to a very great extent, a rapid abstraction of ten or twelve ounces of blood may be necessary, a calomel purge at bed time, and salts or infusion of senna next morning, not only to remove any irritation within the intestinal canal, but to reduce the excitement: but, as this type so seldom occurs otherwise than as an epidemic, where the typhoid supervenes, great care is to be taken not to reduce the tone of the system too much: bleeding may therefore be imprudent: administering a solution of tartar emetic, to excite a degree of nausea and slight vomiting; to prevent the recurrence of this last symptom, smaller quantities should be administered to purge, which will also have a tendency to produce a diaphoresis: thus the capillaries on the surface of the skin as well as the intestines are excited, overcoming the debility and distension. After this, at the distance of eight or twelve hours, two or three grains of calomel in a pill,

and repeated in eight or twelve hours in this country, but in tropical climates every four, six, or eight hours, till the excretions become of a natural colour, which are generally the reverse, very dark, and peculiarly fœtid. When this object is attained, there is generally a greater inclination for food, and not unfrequent for that food that would appear improper, but which, notwithstanding, is to be allowed in moderation ; but the lighter kinds are the preferable. Calomel in small doses acts as a sudorific, but the manner it proves most beneficial in fever is by its acting upon the other secretions, particularly bile, and at the same time increasing the peristaltic motion of the bowels, by which means the fæculent matter is evacuated, which might otherwise be the means of keeping up the fever by its irritation. Sometimes the purging will continue, the excretions though, being of a better colour, and not so fœtid, when a quarter or half a grain of opium may be given with the calomel once a day. When the temperature of the body is above the natural standard, the superabundant heat should be abstracted by sponging the face, neck, breast, and arms about noon and in the evening, with vinegar and water, changing the linen once a day, ventilating the room or fumigating. If there is throbbing of the temporal arteries and delirium, linen rags, wet with vi-

negar and water, should be applied to the head: when the temperature is thus reduced, or when the synocha symptoms are removed, weak wine and water, warm, may be given as the most grateful beverage, which at the same time will act as a diaphoretic. At the commencement, in slight attacks, where the tartar emetic has evacuated copiously, exciting the healthy action of the capillaries, and the excretions being of a proper colour, Port wine and water, warm, may be given to support the action produced, and which has itself a tendency to produce a diaphoresis, that terminates the attack.

When the symptoms are protracted, and the system is sinking, electricity may be applied by the vibratory motion, with the best effects, or even applied when the excretions are of a natural colour, by communicating the positive conductor with the bed, and taking the fluid from the person to supply the negative conductor; thus the capillaries are restored to their proper action from a state of debility and distention, and a grateful and refreshing diaphoresis will be produced, that terminates the attack. In protracted cases of great debility, or where symptoms of putrescency take place, wine, bark, and mineral acids, may be allowed liberally. The electric fluid has been applied where the

bark, &c. had failed in curing intermittents, and in the last stage of continued fever it has apparently produced reanimation, and should never be left untried in such cases.

INFLAMMATION.—Fever of the inflammatory type; the functions of an internal part impeded, induced by mechanical, chemical, or nervous stimuli: when either stimuli is applied in too great a degree, the capillaries are debilitated, and consequently distended, the nerves of the part are irritated, which excite the action of the large arteries of the part, or of distant parts, or of the whole sanguiferous system. As the nerves are capable of exciting to due action the capillaries of the one part, and impairing the vigour of those which have not suffered, it is not surprising that inflammation should leave one part and attack another. Irritation of the nerves contiguous to a vital part that is inflamed, will be the most likely to excite the action of the whole sanguiferous system. When the capillaries are distended in the brain or any other part, acute symptoms, with great pain and fever, attend, which is not the case with distention of large arteries, being chiefly denoted by a failure in the functions of the part affected: the cause of difference, the sanguiferous and nervous systems sympathize

in their *extreme* parts in a way they are not formed to do in any other part : this arises from the capillaries supplying the fluids for the nervous system to act upon in the function of secretion ; the failure of such supply must derange the nervous system, which cannot arise to the same degree from causes acting on the larger vessels ; for however debilitated these vessels are (unless the circulation fails), the capillaries supply some fluid to be acted upon by the nervous system in the function of secretion. Inflammation of the same organ sometimes excites acute pain, and a great degree of fever, at other times but little, thus phrenitis and phrenismus. Pleurisy and peripneumony, hitherto accounted for by the membrane being inflamed in the one, and parenchyma in the other ; but in fact, in the former the capillaries are the seat of disease, and in the latter the large vessels : this may so far vary a little, where the distention in the capillaries is gradual. When inflammation is greatest, the vessels of the part are most distended, and the motion of the blood is slowest : the vessels which admitted only the colourless part of the blood, are so distended as to admit the red particles. Exciting the vessels and increasing the velocity of the blood, their diameters recover, the inflammation subsides. In fever there is a general debility of the capilla-

ries, followed by an increased action of the heart and arteries, which subsides as the capillaries recover their functions: the treatment is therefore to excite the capillaries of any considerable part with which others sympathize, as cold to the skin, cathartics, &c.

When the Brain is the seat of inflammation it is called phrenitis, and known by excruciating pain in the head, extreme sensibility to light and sound; horror, great anxiety, peculiarly wild expression of the countenance, ferocious delirium, eyes appear as if starting from their sockets, skin dry and burning, sometimes profuse perspiration; peculiarly hard and rapid pulse: it generally terminates in stupor and insensibility. It is distinguished from mania by its being attended with violent fever, and the latter not; delirium being the primary affection in phrenitis, distinguishes it from the delirium of inflammatory fever. Phrenitis may arise from external violence, violent exercise, exposure to excessive heats, irritating matter in the stomach, &c. The indication is to diminish the excitement of the circulation by the sudden abstraction of blood both locally and generally, and excite the capillaries, as stated, by nauseating doses of tartar emetic, or any other active purgative, but not to occasion vomiting; pursuing the antiphlogistic regimen most strictly,

and applying an evaporating lotion of vinegar and water to the head.

The application of electricity is not indicated here, unless debility may be the consequence of the protracted attack, when the face, from being flushed, suddenly becomes pale, pupil of the eye dilated, profound insensibility, paralysis, &c. ; when the vibratory motion, or even slight shocks, might be applied through the head and down the spine, and through the limbs.

When the Tonsils, the Pharynx, the Parotid, or Maxillary glands, are the seat of inflammation, the treatment is similar in each : the first is called *Cynanche Tonsillaris*, or inflammatory sore throat, and is known by symptoms of inflammatory fever, the tonsils and adjacent parts being inflamed, painful and difficult deglutition, with sense of burning heat and pain in the throat, that in certain cases extends to the cheeks and ears, which are swollen. The appearances, in some instances, of the inflamed part, change from a florid to a dusky rose colour, interspersed with white specks, which slough. It terminates in resolution, suppuration, or gangrene. The accompanying fever being inflammatory, with the absence of ulceration, may be considered as the diagnostic distinguishing it from ulcerated sore

throat, or *Cynanche Maligna*. The indication in this case is similar to inflammation in general: antiphlogistic regimen; emetics at the commencement, before the febrile action has increased to any great degree, are extremely useful. Keeping the bowels relaxed, throwing the electric aura on the throat for ten or fifteen minutes, twice a day, supersedes the use of any other local application, excepting afterwards applying a flannel. Should the inflammatory action have gone on to suppuration, it will be desirable to bring it forward as soon as possible, which will be materially assisted by applying the electric aura from an ivory ball, through flannel, for ten or fifteen minutes, twice a day, or the vibratory motion, should it appear tardy, afterwards covering the part with an emollient poultice of bread and water or linseed. As soon as suppuration has taken place, an incision should be made, to evacuate the matter.

In inflammation of the parotid and maxillary glands, called *Cynanche Parotidæa*, or the Mumps, the treatment is similar to the former, as well as in

Inflammation of the Pharynx or *Cynanche Pharyngea*; emetics are extremely beneficial.

Putrid sore throat, called *Cynanche Maligna*, comes on with cold shiverings, a sense of stiff-

ness in the neck, hoarseness of voice, the whole internal fauces appear of a fiery red colour, which soon changes to a dark red, interspersed with specks between a light ash and dark brown colour, which often slough. The accompanying fever being of the typhoid type distinguishes it from the preceding species of sore throat. Where the inflammatory terminates in resolution or suppuration, the putrid terminates in gangrene. The treatment for typhus fever is to be pursued, supporting the strength, checking the tendency to gangrene, promoting the separation of sloughs by stimulating, tonic, and astringent gargles, and the application of electricity generally and locally; in the latter it is considered one of the best applications.

When the Lungs are the seat of inflammation, it is called Pneumonia, and the membrane covering them, Pleuritis: the substance of the lungs, Peripneumonia, but, as before stated, the symptoms in Peripneumonia, being more obtuse, with a greater sense of weight and oppression, and the difficulty of breathing more constant, distinguishes it from the former; not that the parenchyma is the seat of inflammation, as was supposed, but the disease is in the larger vessels, and the smaller, or capillaries, are the seat in pleuritis. The symptoms in the

latter are fever of the inflammatory type, acute pain in the chest, referred to the side, breathing extremely anxious, pain increased during inspiration, incapacity of lying on the side affected.

This disease terminates in resolution, in adhesion, and, if protracted beyond the seventh day, often in suppuration, indicated by shivering, pain becoming more fixed, respiration less painful, but more oppressed, and these followed by symptoms of empyema or vomica. In effusion, known by a sudden remission of pain and fever, and symptoms of hydrothorax ensue. By hæmorrhage, at the height of inflammation, a sense of instant suffocation, followed by excessive anxiety and oppression, the indications are the same as inflammations, generally by a sudden abstraction of blood either from the arm, or, what would be preferable, by cupping; purging and the antiphlogistic diet strictly, but what might supersede this practice, and prove a more efficient measure, would be to evacuate the bowels well and inhale the hydrocarbonate gas, varying the strength, beginning with one quart diluted with eight, ten, or twelve quarts of atmospheric air, repeating it as soon as any symptoms appear to recur. Electricity is not indicated unless there are symptoms of suppuration or effusion, when it may

prove beneficial, attending also to support the strength. Should typhoid symptoms supervene, the treatment for that species of fever must be pursued.

When the Stomach is the seat of inflammation, called Gastritis, the phlegmonous species is known by an acute fixed pain in the region of the stomach, sudden prostration of strength, violent vomiting, pain on pressure; the erysipelatous species by heat and pain in the gastric region, attended by symptoms of typhus fever. This disease terminates in resolution, suppuration, or gangrene; the latter, marked by a sudden cessation of heat and pain, and typhoid symptoms; when in suppuration, by a remission of pain and severe rigours. The indications are the same as other inflammations; general and topical bleeding, emptying the bowels by enemas, warm fomentations, saline draught, in a state of effervescence: when symptoms of suppuration or gangrene occur, electricity may be applied, and support the strength as stated in pneumonia.

When the Intestines are the seat of inflammation, called Enteritis, there is acute pain in the abdomen, increased by pressure, bowels obstinately costive, vomiting generally bilious, dark, foetid, and sometimes stercoraceous, terminating in resolution, ulceration, or gangrene, mark-

ed by similar symptoms with Gastritis, except where ulceration ensues, purulent evacuations take place. The indications are the same here as in inflammation of other viscera; bleeding general and local, hot fomentations, but instead of giving medicine, to affect the bowels, it is preferable to administer a copious enema, which if it does not succeed in the ordinary manner of applying it, the tobacco* enema to be had recourse to without delay, which seldom fails of procuring immediate relief; in a few hours after, when the stomach is settled, a little castor oil may be given, to remove any cause there may be for producing further irritation. Electricity is indicated only in the event of gangrene supervening.

* As tobacco and opium are often used, particularly the latter, it may not be amiss to state their effects. In small quantity, they both tend to excite muscular action; but if given in large quantity, destroy muscular power. In small quantity, their operation on the nerves of a part produces a degree of excitement in the whole nervous system, and through it, of the vascular system; but in large quantity, they produce torpor of the nervous system, and consequently the vascular. The excitement produced by opium is followed by languor and inclination to sleep; an over-dose produces convulsions. When tobacco is used, the languor is greater than opium: an over-dose produces tremblings and paralysis.

When the Liver is the seat of acute or chronic inflammation, called Hepatitis, the first species is known by acute pain in the region of the liver, increased by pressure, which is one diagnostic to distinguish it from pneumonia, incapacity of lying on the left side, dry cough and difficult breathing, pains in the chest, but differing from those of pneumonia, in being confined more to the course of the phrenic nerve to the shoulder, bowels constipated, and fæces of a clay colour, at other times the bowels are purged. The second species is marked by symptoms of derangement in the functions of the digestive organs, and comes on very gradually, with sense of weight, and obtuse pain in the region of the liver, the countenance becoming sallow, great torpor and inactivity, spirits depressed, bowels obstinately costive, the secretion of bile obstructed, clay-coloured stools; a favourable prognostic, a change from a bad to a natural colour of the fæces, and an abatement of fever. The treatment of the first species is similar to inflammation of other viscera: bleeding, either general or local, the latter is the preferable, following the antiphlogistic plan most strictly; calomel pills of three grains each, given at bed time, and repeated to affect the bowels, which will be assisted by the application to the abdomen of the electric aura, through

the sheet or blanket, for ten or fifteen minutes twice a day : a perpetual blister to the region of the liver, which will discharge more copiously, by the application of the electric aura. Should suppuration take place, the diet must be more generous, and the bowels attended to ; if the abscess points externally, a puncture should be made to evacuate the matter. The treatment of the chronic species :—attention to be paid to the digestive organs ; in slight cases of torpor and inactivity of the liver, electricity may be applied with advantage, for fifteen or twenty minutes, once or twice a day, the vibratory motion, applying the positive director to the region of the liver, moving it over the abdomen and the wire (connected with the external surface of the bottle) applied to the nape of the neck ; but in more confirmed cases it may be better to conduct the electric fluid, and pass it through the same direction, that is, from the region of the liver to the nape of the neck, from the opposite ends of a Voltaic trough, of that intensity that can be borne without giving pain, and repeated daily for fifteen or twenty minutes ; evacuating the bowels occasionally, that is, once in four or five days, by taking a calomel pill, of three grains, at bed time, and a table spoonful of castor oil next morning, should the application of electricity, at first, not produce a purging,

which it frequently effects without the aid of any medicines, restoring the proper colour to the fæces: pursuing this treatment has been found efficient, even where there was enlargement of the liver to a great extent: thus superseding the administration of mercury, which has hitherto been given in small doses, until the mouth has been slightly affected, and kept so for a time, until the fulness had subsided, the tenderness upon pressure was removed, and the secretion of bile was affected. Where it is an object to affect the constitution with mercury, it will be hastened very considerably by the application of electricity.

When the Kidneys are the seat of inflammation, called Nephritis, known by the symptoms of pain in the region of the kidney, extending along the course of the ureter, with a numbness of the thigh and leg on the affected side, and retraction of the testicle, nausea and vomiting, high coloured, or bloody urine, micturation, dysuria, this inflammation may arise from acrid diuretics; external injury; calculi; violent exercise on horseback; gout, &c.; and is distinguished from lumbago by the pain, following the anterior crural nerve, by dysury and micturation; the inflammation of this organ terminates in resolution, abscess, or in gangrene. The indications here are like inflammation of

other organs: bleeding, general or local; purge with castor oil; warm bath, opiates, and diluents, marsh mallows or lintsced tea. Electricity is not indicated here, unless where symptoms of gangrene supervene, where there is sudden cessation from pain, cold extremities, hiccup and delirium.

When the Bladder is the seat of inflammation, called Cystitis, the acute species is known by pain, tension, and tumour, in the region of the bladder; pain increased upon pressure above the pubes; micturation; obstruction to the flow of urine, or discharged in small quantities; tenesmus; vomiting. The chronic species produced by diseased prostate, stricture, calculus, &c. may cause a thickening of the mucous membrane, or ulceration; the urine having the appearance of whey, from the discharge of mucus and pus; blood is sometimes discharged. The same indications here, as specified for enteritis: bleeding; fomentations; castor oil, to purge, being preferable to salts, as it does not produce the same irritation by passing off with the urine; opiates, when the fever is lessened. In the chronic species, stimulants may be given; balsam of copaivæ; turpentine, &c. injecting some emollient decoctions into the bladder.

When the Membranes of joints or ligaments are the seat of morbid irritation, it is called Rheu-

matismus, or Rheumatism: the symptoms of the acute species are Synocha fever, with acute pain and tension in one or more joints; the pain often shifting from joint to joint, leaving the part it occupied swollen, red, and tender to the touch; bowels generally costive; sometimes profuse perspiration, without relief. The chronic species may be the consequence of the former, or otherwise; the joints that have been affected by the inflammatory species, are left weak and rigid, and the pain generally confined to particular parts; if it moves, it is not attended with fever. The chronic, when not the sequel of the acute, may be the consequence of exposure to cold; pains arise in the head, shoulders, or other large joints, not attended with fever: its attacking large joints, and not being preceded by dyspepsia, distinguishes it from gout. The indications in the acute species, are the same as in other inflammations; bleeding, general or local; evacuating the bowels, by a three grain calomel pill at bed-time, and castor oil next morning or salts; sudorifics, none preferable to four or five grains of the compound powder of ipecacuana, three or four times a day, or throwing the electric aura through flannel on the part affected, for twenty or thirty minutes, once or twice a day. In the chronic species, electricity may be considered a specific, apply-

ing the electric aura, or vibratory motion, fifteen or twenty minutes, once or twice a day, attending to the digestive organs if requisite.

When the extremities of the arteries, or capillaries, in the more distant parts from the heart, generally the toes, are in a state of debility, from over-excitation, the nerves partaking of the inflammation, it is called Podagra, or Gout. There are four species enumerated; the regular, atonic, retrocedent, and misplaced. The first species is attended with symptoms of indigestion; coldness in the extremities, alternating with sense of pricking; about two o'clock in the morning, the paroxysm comes on, with excruciating pain in the articulation of the great toe, increasing in violence; towards the following evening, a moisture breaks out upon the skin, which affords relief; the parts are swollen and inflamed; the succeeding evenings bring with them a return of symptoms more or less violent, which go off towards the morning. The second species, instead of attacking the extremities, appears as an atonic affection of the stomach, other viscera, or the head, producing violent dyspeptic symptoms in the former; palpitation, asthma, &c. when the thoracic viscera is affected, apoplectic and paralytic affections in the latter.

The third species, where the symptoms are

similar to the first, but suddenly cease in the extremities, and retrocede to the stomach, or some of the viscera, producing symptoms similar to the second species. The fourth species, producing inflammation in some internal part, instead of the joints, attended with the same symptoms as inflammation from any other cause. Gout, not being accompanied with symptoms of inflammatory fever at the commencement, and its attacking the small joints, distinguishes it from rheumatism, as well as the preceding and accompanying dyspeptic symptoms in an attack of gout. In no complaint is there more contrariety of opinion as to the mode of treatment: some advise the antiphlogistic mode of treatment, others the reverse, with an intention of keeping it in the extremities. Local remedies are various: tepid bath; weak acid bath; cold water; ice; leeches; blisters; burning with moxa; covering the part with oil-skin, flannel, &c. As to specifics, they are as numerous as the local remedies; all have their advocates for the day, until the deception is discovered, but too late, when nervous debility, with its dreadful train of symptoms, or sudden death, supervenes. The several species of gout arise only from a peculiar state of general health of the person, or from difference of constitution in individuals. The general health,

and, particularly, the digestive organs, is to be attended to. When the constitution is not much impaired, the attack appearing to be local, and the patient plethoric, local bleeding, throwing the electric aura on the part, from a wooden point; when the inflammation subsides, the intensity of application may be increased. The mode of living, though high, during a paroxysm, should not be abandoned, until after the attack has subsided, then lessening the stimulus; acquiring a habit of substituting distilled water for other fluids; decreasing the quantity of high seasoned dishes; increasing the quantity of exercise; attending to the digestive organs; pursuing such plan as is suggested to restore tone to them, as well as the system generally. The second species: the indications are to improve the general health, as stated in the former species; adopting also such mode of treatment as is pointed out in these atonic affections of those parts that are liable to be the seat of this species of gout, where the application of electricity will be indicated. The third species: the indications are to remove the attack from the viscera to the extremities, by the administration of stimulants, brandy, æther, &c. Whether electricity might be passed with benefit, in a stream from the part affected to the extremities, I will not pretend to say; but

I am much disposed to think it would be one of the best auxiliaries, if not itself the remedy. The fourth species may be treated as a primary inflammatory affection, attending to the general health.

Exanthemata, or eruptive fevers: an eruption on the skin, preceded and accompanied by continued fever. As the indications for the application of electricity in these fevers are the same as stated when speaking of continued fever, it will be unnecessary to enlarge this work, which is only intended to point where this agent may be applied as one of the most useful auxiliaries to medicine, and frequently supersedes the use of the latter.

Variola, or Small-pox, which is distinguished into two species, the distinct and confluent; in the former the pustules are distinct, in the latter they coalesce. The eruption of the distinct species is ushered in by Synocha fever; pains in the back and loins; vomiting; disposition to drowsiness; the third day the eruption appears on the face and scalp, in red points, resembling flea bites; the fourth day it extends itself to the neck and upper extremities, and at length occupies the whole body. About the fifth day, a little vesicle, appearing depressed in the middle, surrounded by an inflamed areola, or margin,

containing a colourless fluid; the eruptive fever now disappears. About the sixth, a slight salivation, and a degree of swelling of the throat, and difficulty of swallowing, with hoarseness. On the eighth day the pustules are completely formed, and spherical, the matter resembling pus; the face swells, extends so as to close the eyes. About the eleventh day the matter has changed to an opaque yellow, and a dark spot appears on each; the feet begin to swell, and that in the face subsides; the secondary fever makes its appearance. After the eleventh day the pustules break and discharge, drying on the surface, forming scabs, which in a short time fall off, leaving a dark brown colour, or indentations of the skin. In the second species the fever assumes the Typhoid type; the eruption is irregular in its appearance, and succession of its stages, making its appearance on the second day, which coalesce, resembling the measles; instead of pus, a brownish ichor; the fever suffers a remission, but does not cease upon the appearance of the eruptions: about the ninth day it suffers an exacerbation, and the worst symptoms of Typhus often come on: about the eleventh night it frequently terminates in death. This disease is produced by contagion, if not introduced by inoculation; and, like measles,

will run its determined course: all that is to be done is to combat unfavourable symptoms, and lessen the attendant fever.

Varicella, or the Chicken-pox. Synocha fever slightly; vesicles distinct, and less in size than variola; on the top of each of them, on the second day, a small bladder appears, about the size of a millet seed, containing a colourless or a yellowish fluid. This disease terminates in three or four days, and scarcely requires medical aid, merely attending to the bowels; the pustules generally make their appearance on the back first; this and the pustules not suppurating, but falling off in scales, about the fifth day, distinguishes it from variola.

Rubeola, or Measles, which is distinguished into two species, benign and malignant. The first species: Synocha Fever; hoarseness; cough; difficulty of breathing; sense of weight in the head; tightness across the chest; nausea, or vomiting; frequent sneezing; and drowsiness. About the fourth or fifth day, small spots resembling flea-bites, appear on the face, and successively on the lower parts, which increase, run together, and form large red spots, prominent to the feel; in a day or two more they disappear, and are succeeded by a mealy scaling of the cuticle, and sometimes symptoms of pneumonia, which, in scrophulous habits, fre-

quently terminate in phthisis. The second species is accompanied by fever of the Typhoid type, the fauces assuming the appearance of *Cynanche maligna*. The redness of the eyes, and being loaded with tears; sneezing; cough, and hoarseness, distinguishes it from other diseases. The indications must depend upon the degree of violence of the attendant fever, and remedies appropriated to that degree, as stated for *Synocha* and *Typhus*, must be had recourse to: any local determination of blood to the lungs, &c. the treatment for pneumonia, &c. will be proper, without reference to any stage of the eruption.

Scarlatina, or Scarlet Fever; there are two species. The one called *Scarlatina simplex*, is known by symptoms of *Synocha*; about the fourth day the face begins to swell, the skin becomes covered with red maculæ, which are more numerous, larger and redder than those of measles, and not prominent to the feel; neither is there cough, sneezing, or coryza. After three days the maculæ disappear, succeeded by a desquamation of the cuticle, and is sometimes succeeded by *Anasarca*. The second species is called *Scarlatina cynanchica*, the attendant fever, of the Typhoid type, with an affection of the throat, the same as stated of *Cynanche maligna*. The indications depend upon the

accompanying fever, or local affection, which should be treated accordingly: this disease is generally so mild as to require little or no medicine.

Erysipelas, or St. Anthony's fire: there are three species enumerated; Vesiculosum, or large vesications; Phlyctænodes, or Shingles; and the third, that appearing on infants, called Infantum. Symptoms of Synocha, or Typhus, precede the inflammation of the skin, which, on the second or third day, takes place, appearing of a scarlet colour, tinged with yellow, not so deep a red as phlegmon. There is a peculiar acrid heat of the inflamed part, the face and hairy scalp is frequently the seat of the disease; the inflammation frequently changes its situation, getting well on one part, and extending itself to another; sometimes the efflorescence terminates in Phlyctænæ, the size of lentils. In Erysipelas there is no throbbing; it has a determinate edge, not like phlegmon, where there is throbbing and redness, losing itself insensibly in the surrounding skin. Erysipelas seldom suppurates: the attendant type of fever must regulate the constitutional treatment; the best local applications are cold lotions; when the local redness has subsided, and an œdematous swelling remaining, the electric aura, from a fine hard wooden point, on a brass wire,

mounted on an ivory handle, is preferable: but the most essential and primary consideration should be the general health, and particularly the digestive organs.

Miliaria, or Miliary Fever. On an uncertain day after a fever makes its appearance, either of a Synocha, or assuming more the Typhoid type, a number of small red papulæ, prominent to the feel, appear on the neck and breast, which extend over the trunk and extremities, previous to which there is a pricking sensation in the skin, succeeded by a rank and sour smelling perspiration. After ten or twelve hours, a vesicle appears on each papulæ, containing a yellowish white coloured matter, of a peculiar offensive smell; in two or three days they break. The indications depend on the type of accompanying fever, the treatment for which is already laid down under the heads of Synocha or Typhus.

Urticaria, or Nettle Rash, an eruption resembling the stinging of nettles, arising from mechanical irritation, appearing instantaneously when the skin is rubbed, with intolerable itching; in the day time, generally disappear, and return in the evening, with very slight symptoms of fever. This complaint is so trivial, as scarcely to require the aid of medicine, except that the digestive organs should be attended to.

Pemphigus, or Vesicular Fever. On an uncertain day, after a slight fever makes its appearance, assuming either the Synocha or Typhoid type, small pellucid vesicles appear about the size of an almond, or larger, surrounded by an inflamed margin, containing a yellowish serum; in a few days they disappear or break: the concomitant fever is to be attended to, which generally assumes the Typhoid type.

Aphtha, or Thrush. White specks on the corner of the mouth, tongue, which is a little swollen and rough, and back part of the palate, spreading over the inside of the mouth, and sometimes extending to the œsophagus, stomach, and intestinal canal, when mucus is evacuated by stool and vomiting; the indications to remove the attendant fever, by the means stated for the treatment of Synocha or Typhus, and Cynanche maligna; but, in slight cases, a little borax powder, applied frequently to the aphthæ, and attending to the bowels, will be all that is required.

Hæmorrhagia, or Hemorrhagies, involuntary Discharges of Blood, with fever, without any external violence: when from the nose, it is called Epistaxis, which persons at the age of puberty, or the decline of life, are subject to; plethoric state of the system, hæmorrhage

brought on by violent exertion, cold or external violence, with symptoms of weight and obtuse pain in the head, tinnitus aurium, vertigo, disturbed sleep, bowels constipated. The hæmorrhage may be stopped by suddenly abstracting blood from the arm, and emptying the bowels, applying restringent lotions, vinegar, or ice, over the nose.

Hæmoptysis, or Spitting of Blood, vide Phthisis Pulmonalis.

Menorrhagia, or immoderate flow of the Menses. This may be considered when it recurs more frequent than from twenty-seven to thirty days, continues longer, or is more abundant than ordinary: this may arise from plethora, or inordinate arterial vigour, or the opposite state of the system: when it arises from the former state, it is known by flushed countenance, pains in the head and loins, strong pulse, &c.; but when from debility, the face is pallid, the respiration hurried on the most trifling exertion, a leucophlegmatic appearance, pulse small and feeble. This disease may be brought on by frequent child-bearing, miscarriages, inactive life, drinking enervating liquors, such as tea, warm chambers, violent exercise, blow on the belly, strains, constipated bowels, derangement of the digestive organs, cold and wet applied to the feet, organic affection of the

uterus. If there is plethora, the indication is to bleed, confining the person to an horizontal position, avoiding every exertion, keeping the bowels open with castor oil or enemas, and applying cold lotions (vinegar and water) over the lower part of the abdomen, keeping the chamber cool. To prevent a recurrence, the digestive organs to be attended to, and tone given to the system by the application of electricity, as circumstances indicate, agreeable to the treatment which is laid down for indigestion, &c.

Hæmatemesis, or Vomiting of Blood, may arise from the suppression of an usual evacuation, as the menses, piles, &c. It is known by the blood being of a dark colour, vomited with the contents of the stomach, preceded by a sense of weight, pain, and anxiety, in the region of the stomach. The sudden abstraction of blood from the arm, to cause a revulsion, may be necessary, and the administration of astringents, such as the tinct. ferri, muriat. g^{tt}. xx. ad xxx. omni hora, or acid. sulph. dilut. g^{tt}. xxx. ex aqua fontana, evacuating the bowels with enemas. The treatment should be pursued for the concomitant disease, a few days after the hæmorrhage has ceased, as stated for chlorosis, &c. where the judicious application of electricity may supersede every other medicine.

Hæmaturia, or voiding of Blood by Urine,

may arise from mechanical injury, from calculus, &c. or from external violence, or strain. It is distinguished from high-coloured urine by the deposit of coagulum. Rest, and antiphlogistic regimen, evacuating the bowels with castor oil; if a plethoric habit, general bleeding will be necessary. If the hæmorrhage arise from the irritation of a calculus, remedies for that disease to be resorted to, as well as to drink largely of mucilaginous drinks.

Profluvia, or Flux, is an increased secretion, not bloody: when from the mucous membrane of the nose, fauces, or bronchiæ, is called Catarrh (when the symptoms run high, and it is epidemic, it is called Influenza): slight fever, weight and pain in the head, impeded respiration, with sense of weight in the chest, stopping of the nose, cold shiverings, succeeded by flushes of heat, are the distinguishing symptoms. This disease may arise from sudden or long exposure to cold. The attendant fever is to be attended to. Trifling as this complaint may appear, it frequently is the exciting cause of serious complaints, inflammation of the brain, lungs, and inflammatory fever, and in scrofulous habits, not unfrequently, consumption. The system should be quieted by aperients and sudorific medicines, and even bleeding, if the type of fever be synochal.

Dysenteria, or Dysentery, is a disease arising

from a spasmodic constriction and ulceration of the colon, induced by specific contagion ; much moisture, succeeding to intense heat, favours the production of this disease, which comes on with cold shiverings and symptoms of fever. Great inclination to go to stool, evacuations, frequent of slime or mucus, often mixed with blood, sometimes putrid sanies, accompanied with severe griping : if fæces pass, it is hard and compact ; distressing tenesmus ; loss of appetite, sickness, or vomiting : it is often epidemic ; sooner or later the fever becomes more evident, shewing itself either as Synocha, or more generally assumes the Typhoid type. The indications are to overcome the spasm, and restore the evacuations to a proper colour ; and no medicine so effectual as calomel, in the dose of three grains at bed-time ; the next morning a table-spoonful of castor oil : should the evacuations not become of a natural colour, the calomel to be repeated every succeeding night, till that object is attained. Frequent draughts of very weak white wine and water, warm, tends to assist the operation of the calomel, as well as determining to the skin, producing a gentle diaphoresis, which is a favourable prognosis. Diaphoretics, particularly containing opium, are contra-indicated till the excretions become of a natural colour ; then, should purging continue,

the compound powder of ipecacuanha, about four grains three times a day, will be the best medicine. The application of electricity the next morning after the administration of calomel, has materially assisted its operation, and producing the so much desired for effect, diaphoresis. In chronic dysentery, where a torpor and obstruction in the liver is manifest, passing a current of electric fluid, by placing the person between the opposite ends of a Voltaic trough, through the region of the liver, will supersede a mercurial course, which otherwise will be required till the gums are slightly affected, which should be kept up till the symptoms are mitigated.

NERVOUS DISEASES.

NERVOUS Diseases are those deviations from health where the functions of the nervous system are principally affected, there being no primary local affection or idiopathic fever: the diseases in this class are very numerous. It may not be unnecessary here to state, that nervous influence is incapable of exciting the action of animal life in any part deprived of the vital principle, which is situated in the blood; whether this principle be superadded, or a peculiar arrangement of its constituent parts, is not known. A greater degree of this principle is required for the sensorial power than for either the nervous or muscular (these three are the primary powers, and are not immediately dependent on each other). The first primary power (the sensorial) appears to consist in receiving impressions from and conveying them to the nervous, and to be the power by which man is capable of perception or any act of volition. The nervous power appears not only to consist in conveying impressions to and from the sensorium, but to excite the muscles and

effect the formation of secretions, as well as to cause an evolution of animal heat: this influence seems to be nothing more than that which operates in the production of all electric phenomena. Muscular power is a property depending on its mechanical structure. Upon the collective influence of those three primary powers the first vital function, respiration, depends: withdrawing the sensorial power, by destroying the brain, the expansion of the chest being an act of the sensorium, respiration ceases; though the nervous and muscular are in existence, they are rendered inert. The blood, from the cessation of respiration, is not oxygenated; the pulmonary vessels and left side of the heart consequently will not be stimulated to propel the blood forward; the right side also is rendered incapable of emptying itself: thus fluids are not supplied, to be acted upon by the nervous influence in the function of secretion; there is, therefore, a deviation from that state necessary for the functions of life, which at last must cease.

Secretion depends upon the due supply of blood as well as upon the due performance of the functions of the nervous power (or some body resembling it) collectively; that is, from the brain and spinal marrow, which is effected through the medium of the ganglions, the latter

being the secondary centre of nervous influence, receiving supplies from both brain and spinal marrow. Involuntary muscles being subservient to the function of secretion, receive their nerves from the ganglions also. The muscular and nervous powers not ceasing, upon the removal of sensorial power, but are rendered inert, and the influence of nervous power seeming to be nothing more than that which operates in the production of electric phenomena, may thus be elucidated: carry on respiration by artificial means, the blood will be oxygenated, the stimulus will affect the pulmonary vessels and heart, the circulation will go on, but the functions of secretion will not, for want of nervous influence; substitute a current of electric fluid of certain intensity, and that function (secretion) will be effected in the part where the nerve supplies, along which the electric fluid is conveyed. The functions of the collective nervous power are requisite for the performance of the functions of the digestive organs, through the medium of that of secretion. It will not appear surprising that any derangement of those functions of the digestive organs, when their importance is taken into consideration, will occasion a corresponding disturbance in the system, which in the

manner it will shew itself, will depend upon habit, predisposition, &c.

Nine-tenths of the diseases, as before stated, both local and general, bilious and nervous, originate in a disturbance of the functions of those organs, through the medium of which, the body is supported in the mutation which it daily undergoes; withdrawing the influence of the sensorium, or destroying the brain and spinal marrow, will affect directly the function of secretion, which ceases: digestion consequently ceases, whilst the function of the heart is affected indirectly through the cessation (as stated above) of respiration, which was dependant on the agency of sensorial power, for the sensation to excite the animal to call it into action. The process of digestion is as follows: the food being masticated, and blended with saliva, is conveyed into the cardiac portion of the stomach, where it undergoes a change, being converted into a pulpy mass, or chyme. Any fluid that may be taken does not unite with this mass, and alter its consistence; it passes off even before it reaches the other portion of the stomach, called the Pylorus, being absorbed in the cardiac portion: the latter occupies two, and the pyloric one part of the stomach; and during digestion, there is an imperfect division between those two portions, occasioned by a contraction of the muscular fibres.

It may be stated here, that food just taken into the stomach does not mix with the old, but gets into the centre, being surrounded on all sides by it, excepting at the small curvature, where there is little or none of the latter. The food nearest the stomach is the most digested; but this differs: in the small curvature it is least, in the large curvature more, and in the middle of the large most digested. In the cardiac portion the food is fluid; in the pyloric, it is compact and dry. The food next the stomach is propelled forward as it becomes digested, allowing a fresh surface of it to come in contact.

Should the food not be propelled forward from a cessation of the muscular power, occasioned by sudden death, after a full meal, the stomach itself will be acted upon like dead animal substance, and digested for want of a fresh surface of food to be acted upon. It is to be borne in mind, that the circulation goes on in the extremities of the arteries for some time, after what is commonly called death, or cessation of the sensorial power; and there will be a certain portion of nervous influence in the nerves also: but where there is a partial loss of nervous power in the stomach, as may be occasioned by the division of the eighth pair of nerves, digestion fails; but the muscular power being stimulated by other nerves, propel forward that part of the food

which is digested, bringing a fresh surface in contact with the stomach; the latter, from the great loss of nervous power, occasioned by the division of the eighth pair, is incapable of effecting the change of digestion, the food consequently irritates the stomach, producing sickness and vomiting; but if a stream of electric fluid, of certain intensity, is passed in the course of the nerves, digestion will go on, and the sickness immediately ceases. The food, when converted into chyme, passes from the pyloric end into the small intestine, called the duodenum, where it is blended with the bile and pancreatic juice: it continues to be propelled forward till it reaches the larger intestines; but during its passage through the small intestines, a separation takes place in it, the one portion of which (the nutriment of a milky appearance, termed chyle) is taken up by the absorbents, called here lacteals, which are distributed over the internal surface of the intestines, and conveyed to the thoracic duct, and passes from thence to the blood; but before it enters, it has the same property with the blood, of spontaneous coagulation: the other, or excrementitious portion, is propelled forward, and is ultimately voided.

When the food is not properly converted into chyme, in consequence of its not being properly masticated and assimilated with saliva, or the consequence of debility, or morbid irritation of

the stomach, or of bad quality, or improper quantity of food, or disturbing the digestive process, by taking fluids unnecessarily, either water, fermented liquors, or spirits, fermentation takes place, causing an extrication of gas, or exciting a degree of irritation in the stomach and intestines, which disturb the whole nervous system ; thus a derangement takes place in the functions of the digestive organs, termed *Dyspepsia*, or *Indigestion*. The stomach takes about three hours to digest a moderate meal, and empty itself ; it then should remain at rest to recover its tone, and a fresh supply of food taken when the appetite is returned. Teasing the stomach by fasting too long is very improper, rendering it unfit for its office. Ordinary symptoms, indicating a derangement of the functions of digestion, are a diminished, or a morbidly increased appetite ; flatulence, unnatural fœtor and colour of the excretions, and defective in quantity ; tongue dry, whitish, or furred, particularly in the morning ; sometimes tenderness in the epigastric region when pressed ; urine frequently turbid, sometimes pale and copious ; bowels either constipated or purged ; anxiety and languor expressed in the countenance ; easily fatigued ; unrefreshing sleep, though it may be sound. These circumstances indicate a debility and irritability of the nervous and muscular system ; the

stomach may be weak, or have some morbid propensity, or it may be irritable. When the stomach is weak as well as irritable, the aliment, easiest of digestion, is the preferable, and cordials may prove beneficial, but those that are fluid should be taken after the digestive process is over ; if the stomach is irritable only, vegetable food is the preferable, and abstaining from fermented liquors, which may be the means of tranquillizing it. It may be stated that the effects of food and medicine are not to be considered as resulting from their operation on the stomach, but from their conjoint influence on the nervous system. As the irritable stomach may be relieved by a vegetable diet, the weak, on the contrary, may require a more generous diet to invigorate it, and give energy to the nervous system. It is important that the secretion of bile be in a proper state, as in cases of defective secretion, it shews itself by disordered bowels, emaciation of the body ; in short, it deranges the completion of digestion and chylication : local, or general derangement of the health ensues : the function of the liver being of great consequence in the animal economy, any derangement in it should be obviated as a primary consideration, in restoring and giving energy to the digestive functions. It may not be improper here to state, that the universal and indiscrimi-

nate use of flannel has tended much more frequently than is generally imagined to produce a derangement of the digestive organs, and consequently both local and general disease, by relaxing and debilitating the skin, and deranging its functions; one of its principal functions is to equalize the temperature of the body; when that temperature rises above its natural standard, perspiration takes place, which conveys the superabundant heat to the atmosphere; but the incessant flow kept up by wearing flannel, weakens and produces irritability of the nervous system. I do not presume to say but that there are many persons in whom it would be wrong to leave off flannel, at the same time that I consider it too indiscriminately used. I have often, as a preliminary step, advised persons, who have worn flannel for years, and some who have resided in tropical climates, to leave it off, though they might have much the appearance of decline, emaciation, and an habitual cough. As I considered the derangement of the digestive organs as the primary disease, I attended to what I deemed essential to restore them to their proper tone and energy, and never, in any one instance, had I to regret having advised the leaving off flannel. As the derangement of the functions of the digestive organs may be brought on by excess in eating or drink-

ing, or disturbing the process of digestion by taking fluids unnecessarily, the indications, of course, will be to diminish the quantity of food, and not to drink but when there is thirst, and that thirst not the effect of habit, where from half a pint to three quarts may have been the accustomed allowance of water, beer, and wine: it will appear, as stated above, that the fluid does not assimilate with the food; it must consequently disturb the process of digestion, if taken in too great a quantity. I have had patients who have regularly taken from one pint to two or three quarts of fluid during and after dinner, including wine, who conceived it an impossibility they could do without; but, in less than one month, have felt equally satisfied with from half a pint to a pint, and even less, if not thirsty. In three hours after dinner I have allowed a moderate quantity of wine, which some have diminished so far as to render it indifferent whether they have any or not. It must appear evident, that as simple fluid may be prejudicial in too great a quantity, that is to say, more than to quench thirst, that beer, wine, or spirits, will be still more objectionable. The idea of their assisting digestion is quite erroneous, as food never digests so well as when the beverage is the most pure and simple, and that is distilled water. In chronic, and more especially in constitutional

complaints (cancer, scrofula, &c.) no change can be effected so essentially and permanently, by pursuing any course of medical treatment, unless this simple mode of diet is pursued, even to the abandonment of animal food in some instances; but the latter is of less consequence than the abandonment of all liquids, except distilled water, which should be used sparingly. I do not mean to infer that animal food should not be consumed, but I say it should, in every instance, be used more sparingly than it is at present; and the proper time to take any wine, &c. will be at the distance, at least, of three hours after a meal, when, as before stated, the food will have been digested. I mention this circumstance, being aware of our natural propensities, that although our taking wine, otherwise than as a medicine, is not conducive to health or comfort, yet there are few who will abandon these habits until compelled by disease. The generally attendant symptom of torpor and defective secretion in the liver, should be overcome by the application of electricity, vibratory motion, applying the fluid over the region of the liver; and to assist to give energy to the nerves of the stomach, it should be extended over the region of the stomach also; the point of the directing wire, from the external surface of the bottle, to be fixed to the upper and back

part of the neck: should a continued stream of electricity be required, the circuit should be formed by passing the fluid, by means of the conducting wires, in the same direction, as just stated, from the extreme ends of a voltaic trough, of as many plates as the person can bear, intensity of application, without giving pain. This treatment with, and even without simple medicine (attending also to the preceding mode of diet), has superseded the use of mercury, which has hitherto been considered as the only medicine that could be depended upon, and its effects are usually carried even to the extent of affecting the gums. The treatment will be much assisted in those cases of morbid irritability of the stomach, by drinking at intervals about a pint of the compound decoction of sarsaparilla, in the course of the day, which tends to tranquillize the nervous system. There is one essential point to urge, and that is regular exercise, either by walking, which is the preferable mode, riding on horseback, or in a carriage. As to tonic medicines that are recommended, they are seldom required, unless there is general debility of the system: in weak, languid, and leucophlegmatic habits of body, the preparations of iron are peculiarly applicable, as it generally increases the excitement, promoting the digestive powers; but these, or

any tonics, such as bitters (gentian, colombo root, &c.), are of little or no avail, but indeed are often hurtful, unless the secretions are first attended to. Where there are crudities in the stomach, indicated by nausea, sense of oppression, and eructations, an emetic will be beneficial, which will tend also to rouse the energies of the constitution. As the digestive organs sympathize with any defect of the functions of the skin, cold bathing and taking the electric aura, from the surface of the body, upon a wooden or an ivory ball, through the ordinary dress, will tend very essentially to restore its tone, and, consequently, general health, proportional to the recovery of the digestive organs; or where there appears to be constriction or obstructions, the warm bath, at 98° Fahrenheit, should be had recourse to, remaining in it for twenty minutes at least, that the blood may circulate generally and with greater freedom, which at this temperature it will do without diminution of strength; the small vessels on the surface of the skin will be expanded and gently stimulated, and all obstructions removed. (It is of consequence that the bath and dressing room should be of the same temperature); coming out of the bath too soon is prejudicial, the expanded vessels on the surface are checked, before the circulation becomes general. Want of attention to these

particulars, as well as the time of going into the bath, which should be an hour or two before dinner, will prevent the beneficial effects from being experienced, and this, one of the greatest luxuries, as well as one of the means of renovating health, is brought into disrepute; the application of electricity, as before stated, facilitates the restoration of the general health.

Hypochondriasis, Vapours, or Low Spirits: a disease peculiar to the melancholic temperament. With those symptoms of a derangement of the digestive organs, there is a disposition to seriousness, arising from torpor of the nervous system, a great apprehension as to future events, and a dread of some great evil. Particular attention to health, which should it vary in any unusual manner, will occasion a fear of imminent danger, and even death. The treatment for the derangement of the digestive organs should be pursued, particularly the application of electricity, which is peculiarly indicated here, by passing a stream of electricity along the course of the great sympathetic nerve, the spine, and the region of the digestive organs, for twenty minutes, two or three times a day; and to obviate the morbid association of ideas by change of scene, engaging in interesting objects and convivial society; an emetic mixture of tartar emetic, administered till it excites vomiting, and

then repeated in smaller doses, to purge very copiously, may be of essential service at the commencement.

Chlorosis, or Obstruction of the Menses: the symptoms of derangement of the functions of the digestive organs, with every appearance of want of energy in the constitution ; pains in the back, loins, and hips ; depraved appetite, chalk or charcoal greedily eat ; the lips lose their colour, and the face becomes of a pale yellowish hue, with a leucophlegmatic appearance ; the feet swelling ; hysterics ; cough, and even symptoms of decline. The general health to be attended to particularly, and the means already suggested for restoring the functions of the digestive organs pursued ; taking the electric aura from the surface of the body, for ten minutes (the electrical apparatus should be powerful in this instance, as well as every other, and well excited), after which, for eight or ten minutes, the vibratory motion to be applied, through the uterus, daily (see insulated chair), conveying the fluid from the electrometer, along a wire (attached to the glass handle director), to the pubic and lumbar regions, and down the spine, the fluid thus passing through the uterus, and conveyed by the pin, fixed in the chair, to the chain communicating to the external surface of the medical bottle, with no more pain or inconvenience than an infant can bear. With my powerful

apparatus I have never, in any one instance, failed to restore persons to health afflicted with this disease, the frequent source of much unhappiness, some of whom have tried every other means under the superintendence of some of the most eminent professional characters, for many months and even years. That morbid predisposition to irregularity in the menstrual discharge, either in retention, suppression, or the other extreme, immoderate flow (see Menorrhagia, page 58), require that treatment in either case, to restore the general health, by the judicious application of electricity, as well as the other means suggested in cases of derangement of the digestive organs.

Syncope Anginosa, or Pectoral Angina. Incapacity of action in the heart, arising from morbid irritability of its nerves; ossification of the coronary arteries, valves of the heart, or a morbid accumulation of fat: the fit may be brought on by any exertion or exercise that hurries the circulation of the blood. It comes on with a sharp constrictive pain across the chest, rather extending to the left side and arm, which compels the person instantly to stop, and the moment he does so, the symptoms disappear: it frequently comes on by walking up stairs, or up an ascent, particularly after a full meal. From the frequent recurrence of the fit, the countenance becomes pale; constant cough;

expectorating a viscid mucus; legs swelling; at length he becomes incapable of lying down, and a fit more violent than usual, puts an end to his life. The morbid irritability of habit should be attended to, and the treatment suggested for the derangement of the digestive organs: an issue in the arm also, where the general health is not debilitated, may be attended with the most beneficial effects.

Apoplexia, or Apoplexy, may be divided into two species, sanguineous and serous. In the former all the symptoms of compression of the brain, the powers of sense and motion are suspended; the vital and natural continue; the breathing noisy or stertorous; the eye immovable, and pupil dilated; foaming at the mouth. This species happens in a plethoric habit, with a determination of blood to the brain, or it may be impeded in its return from the brain. An apoplectic fit is generally preceded by symptoms indicating compression: during this period, care should be taken to divert the circulation from the head. Keeping the bowels open, the feet dry and warm, and to live abstemiously, and as the symptoms may be brought on by a turgescence of the vessels of the brain, the electric aura applied to the head, and extended down the spine, may be considered as one of the best remedies, attending at the same time to the

before-mentioned suggestions. In a case of this description, I have applied the electric aura for twenty minutes, which has in half an hour's time produced copious alvine evacuations. During the fit a revulsion should be effected by the sudden abstraction of blood from the arm so as to remove the compression, administering an active purgative; the effects of which should be kept up by nauseating doses of tartar emetic, but not to excite vomiting. Applying linen wet with cold vinegar and water to the head.

The second species, occurring in a person of a leucophlegmatic habit, may be referred to an effusion of serum: it is preceded by languor, debility, and partial loss of sense, brought on by depressing passions of the mind, poor living, &c. The treatment is different to the former species. An emetic, cordials, and diffusive stimuli, electricity by vibratory motion through the head. The bowels should be evacuated and tone given to the digestive organs.

Paralysis, or Palsy of a set of muscles, is called partialis; if of one side of the body, hemiplegica; if of one half of the body, transversely, paraphlegica; if from poison, venenata. This is a disease of debility, or diminished sensibility of nerves, either in the part affected or in the brain, where there may be a determination of blood to the head, with a sense

of weight and pain occasioned by suppressed evacuations, absorption of lead, or it may be the sequel of apoplexy. It is distinguished from the latter by the loss of motion being partial; there is sometimes a sense of creeping or of numbness in the part to be paralyzed. Where the patient is plethoric, or the disease assumes the appearance of apoplexy, the same treatment will be pursued; but should the local affection continue after the symptoms of compression are removed from the brain, the local application of the electric aura will be proper; or where the disease occurs in a debilitated constitution, attending particularly to the digestive organs, and applying electricity by either the aura or vibratory motion; should the intensity not suffice, the person should be placed between the extremities of the directing wires of the Voltaic trough, and the stream passed in the course of the nerves.

Syncope, or Fainting. There is in this disease a deprivation of all the animal and vital powers: in the two former diseases there was a diminution of voluntary motion only. It comes on with great anxiety about the heart, from its diminished action, or of the arteries, occasioned by sudden or profuse evacuations, violent passions of the mind, &c.; respiration becomes suddenly weak, and sometimes to such

a degree as to all appearance wholly to cease, with death-like paleness of the face, and coldness of the extremities. During the fit, dashing cold water on the face with considerable force from the fingers dipped in it, the body being placed in an horizontal position in a current of air, will excite the return of the action of the heart; after the recovery from the fit, should it arise from debility, a little warm wine and water may be taken: should this disease arise from delicacy of constitution and derangement of digestive organs, the plan suggested for their treatment should be pursued.

Trismus, or Locked Jaw, is a spasmodic affection of the muscles of the jaw, arising from irritating causes in the stomach or bowels; local injury of nerves or tendons; irritation of the extremities of nerves, &c.: this comes on with stiffness in the back part of the neck, which gradually increases to pain, rendering the affected part immovable. If a greater number of muscles be affected, as those of the spine, bending the body backwards, it is called *Opisthotonos*; if forward, *Emphrosthonos*; sometimes every voluntary muscle partakes of the disease, exhibiting the most shocking distortion: a remission takes place every ten or fifteen minutes; but the spasms return with greater violence, particularly if moved or touch-

ed. When the disease arises from an injury to a nerve, it should be divided. The bowels should be emptied: the cold bath has been used with success, in overcoming the spasm; mercury to effect salivation: opium has been given in large doses, even to the extent of half a drachm. Electric aura, applied through flannel, from a powerful machine, by means of an obtuse ivory point, may prove the most useful auxiliary in allaying the nervous irritability.

Epilepsia, or Epilepsy. Where there is great irritability of the nervous system, application of mechanical or mental stimuli, as the effects of joy, surprise, &c.; excessive evacuations, suppression of usual discharges, or pressure on the brain, may produce an epileptic fit, which is preceded by a sensation of cold air, called *Aura Epileptica*, creeping up from some part of the extremities to the head, when the person is instantly deprived of his senses, which distinguishes it from convulsions, with the loss of the power of motion; and if standing, falls to the ground, succeeded by spasmodic affection of the muscles of the trunk of the body and face; after a period they cease, leaving the person in a state of insensibility, with the appearance of sound sleep; this distinguishes it from apoplexy. The fit is fre-

quently preceded by pains in the head ; some disturbance of the senses ; unusual dread ; unsound sleep ; noise in the ears. If there should be symptoms indicating a determination of blood to the head, it may be necessary to bleed ; if, on the contrary, debility is obvious, the general health to be benefited, by adopting such means strictly as are suggested for derangement of the digestive organs. If there is derangement in the menstrual discharge, the means for its treatment should be pursued. The electric aura applied daily, over the head and body, is one of the best means of cure.

Chorea Sancti Viti, or the Dance of St. Vitus. It appears in children generally from ten to fourteen years of age, coming on with unsteadiness of one of the legs first, and then the arm of the same side ; arising from weakness and irritability of the nervous system. It is brought on by the irritation of worms ; affections of the mind ; fright ; horror ; or anger. In walking, the limb is seldom lifted as usual ; the arm frequently, irregularly, and ludicrously agitated. The treatment to be pursued as for derangement of the digestive organs, which should begin with an emetic. Electricity is indicated here, as in cases of Epilepsy ; and in most instances affords certain relief.

Asthma. There are several species enume-

rated, but it is the difference of constitution that constitutes the difference in asthma. Such are the peculiarities in this complaint, that what will often produce the disease in one habit, will prove the means of relieving it in others. Great sympathy exists between the inner membrane, lining the trachea, and its branches, and the small muscular fibres of the bronchiæ, as well as the respiratory muscles. The circulation through the lungs being obstructed, the blood is not properly oxygenated; the heat of the body is diminished. When the exciting cause is brought into action, the expiratory muscles contract, producing the obstruction: the exciting causes are, any thing that disturbs the nervous system; sudden changes of temperature, where there is hereditary predisposition; irritation of the digestive organs; abuse of spirituous liquors, as well as those which act locally, as heavy or irritating air. On the approach of an attack, a sense of tightness and stricture across the chest, with distressing straightness of the lungs; respiration difficult, is performed slowly, and with a wheezing noise; a propensity to cough succeeds, followed by the most anxious breathing, threatening suffocation, obliging the person to rise instantly from an horizontal position; this continuing for some time, is succeeded by a copious mucous

expectoration, when the breathing is relieved. To moderate the violence of the paroxysm, and prevent its recurrence, if the habit is plethoric, bleeding will be indicated; but if the habit is debilitated, bleeding is inadmissible. The functions of the digestive organs are to be particularly attended to, and the means suggested for restoring them to their proper tone should be strictly pursued, without which, nervines, antispasmodics, &c., will avail nothing. Voltaic electricity has proved of more service in this complaint, particularly habitual asthma, which is the most frequent occurring, than any other remedy; and in cases where every means had failed in giving relief, it has permanently benefited. The accompanying cough, though violent, should not prevent the having recourse to this remedy. Dr. W. Phillip has enumerated a number of cases where this agent has proved serviceable, every other means having failed, and many were permanently benefited. A stream of electric fluid, of that intensity which can be borne without giving pain, should be passed through the lungs, from the pit of the stomach to the nape of the neck, for five, ten, or fifteen minutes, or until the difficulty of breathing is relieved; this is to be repeated once or twice a day, according to the urgency of the case. Two pieces of metal, wet, may be placed,

one on the pit of the stomach, and the other on the nape of the neck, to the surface of which the wires from the Voltaic trough will be applied and moved about.

Pertussis, or Hooping Cough. It commences with the symptoms of common cough, which gradually increases till it becomes convulsive; there is a slight difficulty of breathing, and symptoms of common catarrh. When inspiration is made during a fit of coughing, a peculiar sound is caused, called the hoop. As soon as the inspiration is made, the cough begins again, and goes on until an expectoration of mucus takes place, or vomiting, which generally terminates the fit. If there are symptoms of pneumonia, bleed locally; if not, an emetic, followed by nauseating doses of tartar emetic: if there are any symptoms of derangement of the digestive organs, the treatment for it should be pursued. I have generally found an emetic, followed by a quarter of a grain of digitalis powder, in six or eight of liquorice root powder, three or four times a day, taking the electric aura from the surface of the body, to be serviceable in most cases: in some I have found change of air necessary.

Pyrosis, or the Water Brash, is a disease generally attacking unmarried females; it usually comes on in the morning, when the stomach is

empty, with a pain and sense of constriction, inducing the body to bend forward until an eructation takes place of a watery fluid, insipid or acid in taste, which gives relief to the pain. The treatment for derangement of the digestive organs to be pursued.

Colica, or Colic, a sense of burning or twisting, as if a ligature was drawn tight around the intestines, the pain being excruciating; the bowels constipated. These symptoms, not attended with fever, distinguish it from Enteritis. When vomiting and purging attends, it is called Cholera Morbus. The indications are to evacuate the bowels by means of castor oil or enemas, applying warm fomentations to the bowels. When copious evacuations have been produced, should the pain not be relieved, thirty drops of laudanum in peppermint-water will be the means of relief. When the usual enemas have not the effect of evacuating the bowels, recourse must be had to the infusion of tobacco.

In an attack of Cholera Morbus, there is an excessive secretion of bile, which produces vomiting and purging. To allay the irritability of the stomach, an opium pill (one grain) to be taken; in ten or twelve minutes after, four grains of calomel and twelve of rhubarb, made into four pills, which will generally remove the

irritating bile: when those pills have operated, the purging to be stopped with four or five grains of the compound ipecacuanha powder, taken three times a day. The treatment suggested for derangement of the digestive organs, to be pursued afterwards, to give tone to the stomach.

Diarrhœa, or Looseness, is a disease arising from whatever may irritate the bowels, as unripe fruits, worms, &c. producing a frequent and copious discharge of fæculent matter, with more or less griping, often attended with sickness or vomiting. The rhubarb pills, stated in the preceding complaint, should be taken, to evacuate the bowels; then the compound powder of ipecacuanha also, as before stated.

Diabetes, or immoderate Flow of Urine. An increased discharge of urine, of a sweetish taste, frequently exceeding the weight of nutriment taken into the stomach; it comes on with a dryness of the skin, with great thirst, voracious appetite, generally; legs swell; the body becomes emaciated. It would appear that the suppressed perspiration is the immediate cause of this disease, which may itself have arisen from a derangement of the functions of the digestive organs. The treatment suggested for the latter complaint to be pursued most strictly; quenching the thirst with distilled water, and

applying the electric aura all over the surface of the body, through the ordinary dress. The appetite for animal food must be indulged in; a determination to the skin, to be assisted by the use of antimonial diaphoretics, and covering the body with flannel.

Hysteria, or Hysterics. A disease, which the female sex, of a sanguine or plethoric habit, generally the unmarried, are subject to; sometimes the more delicate of the male sex, brought on by excessive evacuations, grief, &c. In the former it may arise from suppression of the menses, or great proclivity to venery, occasioned by a peculiar irritability of the nervous system. It comes on with yawning, anxiety, and dejection of spirits; a pain and fulness in the left side, from which there is a sensation of a ball rolling about in the abdomen, and gradually advancing upwards to the stomach, then to the throat, occasioning a sensation of suffocation: a faintness, stupor, or insensibility ensues, with convulsive motions of the body or limbs; with alternate symptoms of laughing, crying, or screaming; the fit goes off, with sighing, and sobbing, and pain in the head. During the fit, dashing cold water against the extremities and face; a little of the spirits of hartshorn and water, or spirits and water, taken. If the person is plethoric, it will be well to

bleed ; if not, the treatment suggested for derangement of the digestive organs, to remove the peculiar irritability ; if suppression of the menses occasions these fits, the treatment suggested for that complaint to be resorted to.

Melancholia, or Melancholy, one of the disorders of the judgment, without fever or coma, is a mild species of insanity, so much resembling Hypochondriacism, that the same treatment is to be pursued in both. In the former the mental derangement is greater, and the symptoms of indigestion are less. It attacks the melancholic temperament. It is characterized by sadness, fondness for solitude, timidity, delirium without fever, having groundless fears about his affairs, dwelling on the object. It is brought on by grief, anxiety, excessive evacuations, and is sometimes hereditary. The indications are to divert the mind from its accustomed object, which may best be effected by travelling, &c. ; rousing the courage of the timid, cheering the gloomy, and such treatment as is suggested for Hypochondriacism.

Mania, or furious Madness, may be brought on by violent emotions of the mind, violent exercise, frequent intoxication, suppression of usual evacuations ; tumours compressing the brain. This disease is not attended with fever, which distinguishes it from Phrenitis. It

comes on with a pain in the head, redness of the face, peculiar wildness of the countenance, rolling of the eyes, violent exertions of strength, roaring, unaccountable dislike of some persons, particularly those who were before the attack the best friends; insensibility to cold or hunger. As those persons have sometimes lucid intervals, they are called lunatics. The treatment is to gain command over the maniac, by gaining his confidence, being firm and determined, at the same time humane; engaging him in pursuits that will employ his mind, and exercise the body. If there is plethora, bleed. The plan, suggested for derangement of the digestive organs, strictly; distilled water, vegetable diet, &c.

DISEASES

ARISING FROM DEPRAVED HABIT.

PHTHISIS Pulmonalis, or Consumption of the Lungs, may be divided into three species: Scrofulous, marked by tubercles in the lungs; Membranous, where there is erysipelatous predisposition; and that which is the sequel of chronic or asthmatic cough. The first species, in a scrofulous habit, where there is a determination to the lungs, excited by catarrh, pneumonia, or any other cause, producing irritation, lymph is partially deposited in the cellular substance, forming tubercles, which again increase the irritation by their mechanical action, and produce partial congestion in some of the vessels, which are frequently ruptured during a fit of coughing; blood is consequently expectorated: frequent symptoms at the commencement are drowsiness, headache, giddiness, and disturbed sleep, which are produced by the impediments to the free return of blood from the head through the sinuses. The attention of the patient is scarcely directed to the danger of the slight dry cough, until it has become

habitual ; the cough and untoward symptoms are increased, and assume a serious aspect, generally in spring, the reverse of that species, the sequel of asthma, &c., inflammation and suppuration taking place in the tubercles ; respiration hurried ; gradually losing strength ; becoming languid and indolent ; emaciation and weakness go on increasing ; pain in the thorax, which becomes acute, and prevents the patient lying on the affected side, increased by coughing ; the pulse becomes quick and hard ; the palms of the hands and soles of the feet are affected by burning heat. When inflammation and suppuration take place in the tubercles, a fever, marked by slight shiverings, accompany it ; but very different from the hectic, which ensues ; the latter has an exacerbation twice a day, preceded by severe rigors, and followed by profuse perspiration ; the first exacerbation, but slight, about noon ; the other in the evening, which gradually increases till after midnight. When the tubercles suppurate, and are so situated that they discharge into the bronchial ramifications, the matter is expectorated with ease, with more or less mucus ; the appetite improves ; the patient flatters himself with false hopes of speedy recovery. When the matter is discharged between the pleuræ, it causes great irritation and constitutional derangement, which reacts on

the organic affection; thus the disease advances, till the lungs are incapable to supply oxygen to the system; at length the muscular power is lost; the bowels lose their tone; diarrhœa ensues, and nocturnal perspirations; irritation takes place in the internal surface of the trachea, followed by aphtha, which frequently extends down the gullet, and even throughout the intestinal canal. The second species of this disease, is an erysipelatous inflammation of the internal membrane of the trachea, extending down the bronchial ramifications, brought into action by the excitement of catarrh, &c. The disease commencing with hoarseness, and expectoration of frothy mucus, of a saline taste, the inflamed parts become ulcerated, when a little pus, frequently tinged with blood, is expectorated; pains in the chest seldom attend this attack, neither is the power of respiration much diminished; differing from the former species, where from the commencement there is difficulty of respiration, attended with cough, as well as the hectic fever seldom making its appearance long before dissolution, and the tubercular appearance of the former on dissection; in the latter the cellular substance being filled with serum, and the bronchial ramifications with mucus. The third species, the sequel of asthma, being the consequence of

previous disease of the lungs, is accompanied by general debility, and is slow in its progress : a cough, which in winter is exceedingly troublesome, in spring will be removed in great measure (the reverse of the scrofulous); the expectoration mucus, which is sometimes frothy. Pain in the chest is seldom complained of, neither is it accompanied by hectic fever : as the disease advances, respiration becomes laborious, and expectoration difficult, of a brown colour, and fœtid smell. The appearance of the lungs, on dissection, are of a blueish mottled colour, and do not collapse, the bronchial ramifications being loaded with mucus : thus, it appears, that the first species is seated in the substance of the lungs ; the second in the membranes of an erysipelatous nature ; and the third arising from the continued diseased action, occasioned by asthmatic attacks, or chronic cough, frequently the consequence of the ossification of arteries. The indications are to lessen inflammation, during the inflammatory stage, by cupping and inhaling hydro-carbonate gas, diluted with atmospheric air ; to reduce the pulse, digitalis also ; to lessen the cough by opiates ; every means that will quiet the system : the diet vegetable, and distilled water, unless the system has given way to the disease, when animal food will be required : a sea voyage, or nauseating

doses of tartar emetic, have frequently been attended with beneficial effects. When there are symptoms indicating a want of energy, remedies must be had recourse to, such as preparations of steel, and electricity, as stated for derangement in the functions of the digestive organs.

Emphysema. External tumour, occasioned by a collection of air in the cellular membrane; arising from wounds in the lungs, and sometimes comes on spontaneously, without any evident cause; it is attended with a crackling noise upon pressure: the air to be evacuated by scarifications and pressure, relieving any urgent symptom that may occur.

Tympanites, or Tympany. A collection of air, either in the cavity of the peritoneum, or intestinal canal. In the latter it sometimes is preceded by flatulency, occasioned by loss of tone in the intestines, attended with colic pains; at other times it comes on suddenly, producing distention of the abdomen; occasioning constipation; dysuria, and sometimes ischuria; thirst; heat; emaciation; hectic fever; dropsy; or gangrene. In the former the tumour is more equal and elastic, with no emission of flatus: the indications are to evacuate the air by administering carminatives, opening the bowels with warm purgatives, containing pepper or oil of

aniseed, or enemas: in that where the peritoneum is distended, pressure by bandage or paracentesis, with a small trocar: attending to the suggestions in cases of derangement of the digestive organs, to give tone to the system.

Anasarca, or Dropsy. This disease is a preternatural collection of watery fluid, occasioned by diminished absorption, or increased effusion in different parts of the body, arising from an obstruction to the free circulation, occasioned by pressure, or from debility, which may arise from excessive discharges; suppression of customary evacuations; the sudden disappearance or striking in of eruptive complaints; or it may be the sequel of other complaints, as scarlet fever; jaundice; dysentery, &c.: it generally commences in the lower extremities, and progressively ascending to the body, producing difficulty of breathing; urine scanty, and high coloured; great thirst; bowels constipated; sallow countenance; torpor; heaviness; troublesome cough: when the collection of water is in the cellular membrane, beneath the skin, it is called *anasarca*; when in the peritoneum, *ascites*; in the chest, *hydrothorax*. It is more frequently the consequence of some other disease than a primary affection; the treatment must consequently be adapted to that complaint, as well as to evacuate the collected fluid. As

an emetic will tend to increase the action of the absorbent vessels, its use will be indicated here, as well as cathartics and diuretics, such as squills, digitalis, &c.: the digestive organs to be attended to particularly, and the application of electricity is peculiarly applicable. In some cases of this disease the swelling of the legs will decrease during, and immediately after the application of slight sparks, or vibratory motion, and a considerable discharge of urine takes place; also oxygen may be inhaled, to the quantity of four or six gallons per diem. In those cases where the tension of the abdomen becomes insupportable, recourse must be had to the operation of paracentesis: this operation must also be performed in the chest, if the disease appears to be purely local, and other means prove ineffectual.

Hydrocephalus, or Water in the Head. This disease is almost peculiar to children of a scrofulous predisposition, rarely occurring after fourteen years of age. It comes on with pain in the head, which is sometimes so violent, that piercing cries are uttered, inducing the person to compress the forehead with the hand: as the effusion increases, symptoms of pressure on the brain become the more evident; pupils of the eyes being dilated; sickness at the stomach; difficulty of breathing comes on, stertorous

breathing, &c. The treatment for Dropsy to be pursued; the most active means should be adopted: one grain of calomel has been given three times a day, digitalis, &c.; but there is no remedy more efficacious than electricity, taking the aura through flannel, and even applying the vibratory motion.

Rachitis, or Rickets: another disease, peculiar to infants, between six months and two years of age, of a scrofulous habit. A leucophlegmatic appearance of the whole body; disinclination to motion; enlarged abdomen, head, and joints; the more spongy bones become soft; the cylindrical bones bend; also the ribs and spine; symptoms of derangement of the digestive organs: particular attention to restore those functions are indicated, enforcing such treatment as suggested, to give tone to the system, and assist in procuring healthy chylickation. Electricity is serviceable, joined with preparations of steel; exercise, light nourishing diet, &c.

Scrofula, is a disease arising from a morbid irritability of the absorbent system, the function of which, it has been perceived, is dependent upon the nervous system: the peculiarity of the appearance of a scrofulous subject is a fine light and delicate complexion, light hair, light blue eyes; a tumid countenance, and

swelling of the upper lip ; scrofulous tumours are occasioned by the want of unison between the discerning extremities of arteries and the absorbent vessels ; it takes place in glandular structures, particularly those of the neck ; ligaments of the joints, and even in the substance of the bones ; as well as the mesenteric glands ; and in the substance of the lungs, forming tubercles. Scrofulous inflammation is attended with a soft swelling, which increases, with a doughy feel, that changes by degrees into that of elasticity or fluctuation, with a hardened margin round the tumour ; the skin being slightly red, at length becomes thinner and more dark coloured ; the tumour then bursts, discharging a curdy matter, mixed with a thin fluid ; the aperture enlarges and becomes an ulcer, as the tumour subsides, having an obtuse smooth margin, of a purple colour, hard and tumid : the granulations indistinct and flabby ; the discharge thin, and containing flakes of coagulated matter. The indications are to amend the general health, and give tone to the system ; attending strictly to the suggestions for derangement of the digestive organs ; emetics ; electricity ; preparations of steel ; oxygen gas ; sea-bathing, &c. : the local treatment may be that of taking the electric aura from the tumours every day, through flannel, as well as applying

it to enlarged ligaments of joints. If the knee is the seat of disease, it may be necessary to blister it first, or produce irritation on the surface of the skin, by friction, with tartar emetic ointment; in hip cases, caustic issues are preferable.

Scirrhus, or Cancer: an indolent tumour, involving every kind of structure, skin, muscle, cellular substance, &c., but most generally glandular structures: the skin, immediately covering the diseased tumour, becomes of a dull leaden colour, and puckered: the tumour has an uneven or knotty feel, and occasionally darting pains through it; is fixed to the skin above and muscles beneath; it is harder and heavier than other tumours generally: when extirpated, it has a peculiarity of structure, being interspersed with white ligamentous bands, which extend more or less into the surrounding fat. Such are the characters of true scirrhus: but, there are other tumours* and indurations, which

* Those tumours are called Sarcomatons, and have been classed by Mr. Abernethy, according to their peculiarity of structure, and named from their resemblance to natural structures, Pancreatic Sarcoma, from its resembling the Pancreas, &c. It must suffice for me to state, that they all originate either from increased action of the discerning arteries, or defective action

ulcerate and assume an appearance as malignant as the ulceration of true scirrhus. If the diseased tumour has the characteristic marks of true scirrhus, there should be no delay in extirpating it by the knife. In the incipient state of the other tumours (which from neglect or improper treatment do assume the appearances of a malignant ulcer), an attempt should be made to disperse, by applying the electric aura through flannel, by means of a blunt ivory, or wooden point: at the same time, as well as in a case of true scirrhus, it will be necessary to attend to the state of the functions of the digestive organs, particularly enforcing the adoption of distilled water, as the only beverage, and vegetable diet; unless there is much debility, when animal food, very sparingly, may be allowed: applying electricity and other means, as stated for derangement of the digestive organs, as the case may require. It may be necessary to state that the operation of extirpation should not be performed when the disease appears to extend to the contiguous absorbent glands. In the advanced stages, where the tumour has

in the absorbents, and that the matter or lymph becomes itself vascular, and by the peculiar action of its own vessels, assumes the different morbid structures stated.

ulcerated, and when the health is declining, countenance pallid, preparations of iron will prove beneficial, with the local application of carbonic acid gas.

Blindness, or Defective Vision, may arise from a change in the structure of the membranes of the eye, the consequence of inflammation; or it may arise from an opacity of the crystalline lens (named cataract), or from a paralysis of the retina and optic nerve (named *gutta serena*).

One of the results of inflammation, is opacity of the cornea, called *nebula*, where the veins of the conjunctiva become preternaturally turgid in their trunks, and extending to their ramifications, spreading over the anterior surface of the cornea, giving it the appearance of an opaque, dense film. Another result of acute inflammation is extravasation of lymph into the substance of the cornea, called *albugo*; and is sometimes the consequence of an ulcer of this membrane; it is then called *leucoma*. The cornea is sometimes ulcerated, which spreads superficially, destroying the transparency of the membrane, or penetrates into the anterior chamber of the aqueous humour, which becomes fistulous. In either of the above cases, electricity may be applied with advantage, as well as in all chronic inflammations of these

organs, or of the eyelids, either as an auxiliary, or even it may supersede the use of any other application: the intensity of application must depend upon the extent of disease, as well as the length of time that has elapsed since the attack of acute inflammation has subsided, beginning by taking the aura upon a wooden point, for fifteen or twenty minutes, once or twice a day: as the eye will bear greater intensity, an ivory point should be substituted, then the wire, and even the vibratory motion, particularly in cases of gutta serena, or cataract. It is sometimes necessary in a case of nebula, to divide the fasciculus of varicose veins, at the base of the opacity. Gutta serena, arises frequently from sympathy, with a derangement in the functions of the digestive organs, which, of course, should be the primary object of attention, and the means suggested for such derangement, should be pursued; it sometimes arises from a suppression of the menses---the treatment for such affection should be adopted.

Cataract, or Opacity of the Crystalline Lens, generally arises spontaneously, and very frequently may be cured by attention to the general health; and continued application of electricity superseding the necessity of having recourse to the painful operation of removing

the opake lens from the axis of vision, by a needle (termed couching), or as it is sometimes performed by extraction, through an incision made at the lower point of the cornea. Those operations should never be performed without giving the other plan a fair trial, which, at all events, will render the operation a less hazardous one, did it possess no other advantage: but I am of opinion that three cases in five might be cured without. The general health being attended to, with the application of electricity, is of the greatest consequence, even though it may not supersede the necessity for operating; as the too premature use of the couching needle may be followed by inflammation, that no means will subdue till the eye is inevitably lost. A case of this description happened within my knowledge, a few days ago, where a gentleman from Herefordshire came to town, and consulted an oculist, who is famed for operating expertly, and who performed the operation of depression upon both eyes, inflammation ensued, which rendered him totally blind; this was the more distressing, as the gentleman could, before the day of operation, see sufficiently to be enabled to write letters to his friends; and I have every reason to think that had the plan been adopted, of attending to his

general health, and electricity been applied, he would have been at this moment in possession of one of the greatest blessings, eye-sight.

Fistula Lachrymalis. An obstruction to the passage of the tears through the nasal duct, into the nose, occasioned by the altered and irritating quality of the secretions from the Meibomian glands, which accumulate in the lachrymal sac: this obstruction causes the tears to trickle down the cheek, from the inner angle of the eye. The second stage is when the sac ulcerates, which cannot be healed until the passage is made pervious again, through the nasal duct, and kept so by means of a style. In the first stage, electricity may be applied with great probability of success; correcting the morbid secretion, by taking the aura on a wooden or ivory point, for fifteen or twenty minutes, daily; at the same time washing the lachrymal sac and duct, by means of a small syringe, through the lower lachrymal puncture: the eyelids, or tarsi, should be smeared with nitrated quicksilver ointment, lowered with spermaceti ointment, every night, to prevent the eyelids from being glued together, and which will also tend to correct the secretion. When the obstruction in the nasal duct cannot be removed by these means, an opening is to be made into the lachrymal sac, and the obstruction removed by a small probe; a

style must then be introduced, and worn for six or seven weeks; the general health must also be particularly attended to.

Contusions. Slight contusions, occasioning weakness in the bruised vessels and extravasation. Taking the electric aura from the part, for fifteen or twenty minutes a day, either on a blunt wooden or ivory point, or sometimes a wooden or ivory ball, through flannel, supersedes all local applications, preventing discoloration. When the contusion is more violent and contiguous to a vital part, and inflammatory action likely to be the result, bleeding and other evacuations may be requisite, which when subdued, and there should be considerable extravasation, the application of electric aura should be had recourse to, to promote absorption.

Burns. The extent of injury depends upon the duration of application, as well as upon the heat of the burning substance; and the danger is proportioned to the violence and situation of the burn. The appearances are different, in the different degrees of injury; from the mildest cases, where the inflammation is gentle and without swelling; in the next degree, redness and swelling, with little fever; if still more violent, vesicles arise, the pain being intolerable, and suppuration ensues, or mortification, either at

the period of the accident, or as the consequence of inflammation. Extensive burns often affect the functions of the lungs, producing symptoms of asthma. The application at the instant should be vinegar and water, until the person can have the electric aura applied, which must vary in intensity, according to the extent of injury; requiring it to be greatest, in proportion where the injury is most, the sensibility being least: upon this principle, a dressing of spirit of turpentine is applied, and allowed to remain on for twenty-four hours; this was mixed with an equal portion of basilicon ointment, and spread on linen; and as the surface recovered its sensibility, the succeeding dressings were more mild, such as Turner's cerate, &c.

Ganglions. A movable tumour, generally situated above a tendon or ligamentous expansion, unattended with pain, composed of a firm tendinous cyst, containing a viscid fluid. It seldom inflames. I have frequently succeeded in their cure, when the usual means have failed, by the application of strong sparks from a brass ball of considerable size.

Furunculus, or Boil. An inflammatory swelling, generally about the size of a pigeon's egg, of a deep red colour, circumscribed, prominent, and painful. It suppurates, but imperfectly. The application of electric aura quickens the

process of suppuration, applied through flannel, for fifteen or twenty minutes twice a day, applying immediately after an emollient poultice; or should an induration continue after suppuration, it may be diseased by the application of the electric aura.

Carbuncle, is a malignant species of Boil, which occasions a gangrenous suppuration beneath the skin, attended with symptoms of typhus fever, which is dangerous in proportion to the extent of the accompanying fever. The local treatment the same as for a boil, but the primary consideration will be the fever, which must be treated as stated for continued fever. The appearance of a carbunculous swelling is a little elevated above the surface of the body; the skin over the centre of the disease is a dull brown, red colour, of a thickened and hardened feel: it is very tardy in bursting, which, when it takes place, is into several apertures, from whence a yellow, greenish, bloody, irritating discharge, issues. The great mass of the matter with the cellular substance sloughing; but, as the apertures are so small and tardy in their formation, it is advisable to make an opening, to discharge the matter, which should be gently squeezed out.

Chilblains, arise from exposure to sudden cold, or when cold, exposure to sudden heat,

which produces a redness, with occasional heat and itching, generally affecting the toes or fingers, and sometimes the nose, ears, or lips. The best mode of cure, or to prevent its coming on, in those who are liable to its attack, is the daily application of the electric aura, through flannel, on a blunt wooden or ivory point, for twenty minutes: indeed, I have often known two or three applications cure, and consider it a specific for the complaint.

Œdema. A tumour uncircumscribed, arising from an accumulation of an aqueous fluid in the cellular substance. The skin rather paler than natural. When pressure is made with a finger on the part, the impression remains for some time. There is no pain, but a weight and tightness. This may arise from debility of parts; from local injury, contusions, sprains, or is sometimes the sequel of acute inflammation, or from pressure preventing the free return of the blood to the heart, occasioned by a gravid uterus, aneurisms, &c. The indications are primarily to remove the cause, and apply locally the electric aura, with uniform pressure, by a bandage: should the part be inflamed, the limb should be placed in an horizontal position, and covered with vinegar and water, till it has subsided, then apply the electric aura and bandage.

Ulcers are divided into healthy, irritable, indolent, and specific. The healthy requires only the application of adhesive plaister, or a little unirritating ointment, with a roller of calico.—It will be necessary to attend to the general health, as well as to apply fomentations, or the electric aura from a wooden point, to an irritable ulcer, with dressings of spermaceti ointment, covering it with an emollient poultice. When the irritability has subsided, it should be treated like the healthy ulcer. The indolent ulcer requires attention to be paid also to the general health, and the local application of electric aura, upon a blunt wooden or ivory point, through flannel, first dressing the ulcer with strips of adhesive plaister, afterwards applying a calico roller.

The specific ulcer arises from morbid action, depending upon an affection of the constitution, such as scrophulous, venereal, cancerous, &c. The peculiarity of constitution is to be combated first, and the local treatment of the ulcer will be similar to the foregoing species.

Noli me Tangere. A species of Herpes, that generally attacks the skin of the nose, consisting of small superficial ulcerations, which discharge a matter that seems to have the power of infecting. This disease proves obstinate, healing in one part and breaking out in another; it even goes on to destroy the whole nose.

Particular attention is required to be paid to the functions of the digestive organs. Distilled water and vegetable diet, &c. and the local application of the electric aura, upon a wooden or ivory point, for twenty minutes daily; touching the ulcerations with a solution of lunar caustic, then covering them with spermaceti ointment.

Bronchocele, or Wen. An enlargement of the thyroid gland: the enlarged mass has a number of cells, containing a viscid fluid. The local application of the electric aura, through flannel, on a blunt wooden or ivory ball, and even passing a current of electricity, of considerable intensity, through the gland, will be required to disperse this enlargement.

Hydrocele, may be a collection of fluid in the cellular texture of the scrotum, in the tunica vaginalis, or in the spermatic cord: the first is dependent on hydropic affection of the whole system, and is to be treated accordingly; the two latter are local; the first kind of the two latter, the electric aura, through flannel, to be applied, of the greatest intensity, and even the vibratory motion; but, if neither will succeed, an operation should be performed, to evacuate the fluid, and means taken to excite a due degree of inflammation, for the purpose of adhesion. The second kind of the two latter,

the same treatment should be pursued; the local application of electricity, judiciously applied, may save the necessity for operating to evacuate the fluid.

Hernia Humoralis, or Inflamed Testicle, arises frequently from the irritation of gonorrhœa, but may arise from contusion, &c. A soft pulpy fulness of the body of the testicle, which increases to a swelling, and is exceedingly painful, are the symptoms; the scrotum becomes smooth, from distention. The person should be confined to bed, an emetic given, the antiphlogistic regimen pursued, and the bowels should be evacuated; local bleeding with leeches, and warm poultices, suspending the testicles in a bag-truss, as soon as the inflammation is subdued; the application of the electric aura, through flannel, for the purpose of removing the induration of the epididymis, may be used with advantage, superseding the use of mercurial friction.

Deafness arises from a variety of causes. It is frequently produced by an accumulation of the cerumenous secretion in the ear, commonly called ear-wax, or from a defective secretion; or it may arise from a paralytic affection of the auditory nerve. Ulceration of the membrane lining the external passage of the ear, which sometimes extends to the *membrana tympani*,

commonly called the drum of the ear, so as to destroy it. Change of structure, from inflammation ; or it may arise from obstruction of the Eustachian tube, preventing the passage of air to the internal cavity of the ear. The first cause stated, if recent, requires but to have the ear properly syringed with warm water : should the cerumen be indurated, it will be proper to soften it first with a solution of soap in water, for a quarter or half an hour, when the syringing will bring it all away, and the deafness is cured. The cerumen or ear-wax being secreted for the purpose of protecting the delicate lining of the ear from the injuries of the air, which when defective, occasions an insensibility or callousness to the impressions of sound, and consequently deafness : in this case, the application of electricity may assist very materially in restoring the secretion, in conjunction with a liniment made of sweet oil, thickened with white wax, to the consistence of the cerumen : this applied upon cotton, introduced upon a probe, to lubricate the passage : a slight stimulating property may be given to this application, by adding a small quantity of cajeput oil, or oil of turpentine. By persevering in the use of this liniment, with electricity, will restore the functions of those glands. When ulceration takes place, or a purulent discharge

from the ears, they should be syringed very gently with a warm lotion, possessing some stimulating property. A solution of six, eight, or ten grains of the sulphate of zinc, or a drachm of Egyptian honey to four ounces of rose water: neither should occasion pain by its excessive stimulating property. When the ulceration is healed, it does not follow that hearing will be restored, as a change of structure, or even the destruction of the drum, may have taken place. The obstruction in the Eustachian tube is often the consequence of sore throat, when inflammation or ulceration may render it impervious to the passage of air, or the obstruction may arise from lymph or mucus. Where it is impervious, from inflammation or ulceration, nothing can be done to relieve it; but from either of the latter cases, an emetic and stimulating gargle may tend to remove it: but the cause is as frequently removed spontaneously, which occasions a sound as if something gave way, or was ruptured. Very frequently a derangement of the general health occasions deafness, that is called nervous, which will require such treatment as is stated for derangement in the functions of the digestive organs, where electricity will be of essential service.

I cannot close this subject without noticing two works written by Mr. Wright, surgeon-

aurist in extraordinary to her late Majesty, which it may be satisfactory to those afflicted with this distressing disease to peruse, as they point out a rational mode of treatment. The first Essay was published by Messrs. Longman and Co. and recently an Address to Persons afflicted with Deafness, published by Mr. Callow.

Cephalalgia, or Head-ache, may arise from opposite causes; fulness or depletion of blood-vessels in the head, from rheumatism, or from sympathy with parts disordered, as the womb, digestive organs, &c.: it sometimes is occasioned by an accumulation of electric matter, the dryness of the scalp, and surface of the body, not allowing a proper medium for its passing off. The treatment, in the first instance, is depletion, by cupping, and emptying the bowels; antiphlogistic regimen. In the second instance, rheumatic, the application of electric aura is a specific through flannel. The third, affections of the womb, digestive organs, &c. The treatment pointed out for such affections should be the primary consideration; taking the aura from the head also, as well as in the fourth; applying it, in both instances, through a wooden ball or blunt ivory point. The state of the general health ought always to be at-

tended to. Very acute pain in the head has been cured by the application of electricity only.

Cutaneous Eruptions, of which there are a great variety, if we judge from the voluminous works enumerating species and varieties, which serve to amuse, but are of no practical utility. The appearances of the same diseases of the skin may differ from the difference of structure of the part in which it occurs, or when it extends to the rete mucosum, the cutis, or the cellular substance, or even the state of the general health may affect it.

When pimples on the face arise from drinking to an excess, it is obvious the first consideration will be to avoid that extreme which, with the local application of electric aura, will restore the functions of the skin. Should there be derangement of the functions of the digestive organs, which is itself one of the most frequent sources of obstinate cutaneous affections, the treatment suggested for it should be pursued as the primary consideration. The scaly affections of the skin, or clusters of small pimples, or those patches that appear in the spring and autumn, require an alterative medicine, that should determine to the skin. An occasional two-grain calomel pill, at bed-time, with a pint of the compound sarsaparilla drink daily, with the

local application of electric aura, will be the means of restoring the functions of the skin ; or in more obstinate chronic cases, the eighth or fourth part of a grain of the oxymuriate of mercury, every night, with the sarsaparilla drink, may be required. It may appear needless to state, that particular attention should be paid to cleanliness.

The Herpes Serpigo, or Ring-Worm, and Tinea Capitis, or Scald Head, are so well known, that they require no description. The application of electric aura is one of the most effectual means of relief: in the latter case, it will be necessary to shave the hair off, and wash with soap and water, applying a small quantity of Ung. Hydrarg. Nit. to soften the part, which at the same time will tend to heal it, covering it afterwards with a plaster of equal parts of pitch and sulphur ointment, spread on linen: it will not be requisite for the application of the latter plaster, in the case of ring-worm.

Suspended Animation. The suspension of the vital powers, produced by immersion in water, strangulation, suffocation by noxious vapours, or lightning, require the same resuscitative means. The body should be placed in warm blankets, in a reclining posture, in a large and warm room, the temperature 98° Fahrenheit at least, with the head a little higher than the body. It is of the greatest consequence

that artificial respiration should be carried on. The lungs should be inflated with oxygen gas one part, atmospheric air two parts, care being taken that this air passes into the lungs, instead of down the œsophagus, to the stomach : friction with flannel, and applying the electric fluid by vibratory motion all over the surface of the body, the negative wire conducting the fluid to the external surface of the bottle, to be applied to the feet: passing very slight shocks down the spine, and from the left to the right side through the chest, or passing a current of electric fluid from a voltaic trough through the lungs, as stated in page seventy-four.

Tic Doloieux, a very painful and distressing complaint of one of the nerves of the face: its most frequent seat is the nerves of the cheek, just below the orbit of the eye. This morbid irritability may arise from diseased structure. Nothing is more likely to give relief to this complaint, than the judicious application of electricity, by applying the electric aura through flannel upon a blunt ivory point, increasing the intensity as circumstances may indicate; should there be symptoms of derangement of the functions of the digestive organs, the treatment suggested for their relief should be also pursued.

Sterility. This may arise from a variety of causes: the impediments generally, if not in-

variably, with the female, from morbid irritability of the nervous system, general health impaired ; the functions of the digestive organs deranged ; irregularity in the menstrual discharge, or local defect in the womb. The indications are to restore the system to a state of health, where no means will be of greater utility than the judicious application of electricity, as stated for derangement of digestive organs, suppressed menstruation, &c.

THE END.



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